

Source and Classification of Stones

1. Stones are obtained from rocks that are made up of:

- a) Ores
- b) Minerals
- c) Chemical compounds
- d) Crystals

[View Answer](#)

Answer: b

Explanation: Rocks are made up of minerals. They can be monomineralic (single mineral) or polymineralic (more than one mineral).

2. Which one of the following is not a classification of stones?

- a) Physical Classification
- b) Mineralogical Classification
- c) Chemical Classification
- d) Practical Classification

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Answer: b

Explanation: The classifications of stones are physical (based on structure), chemical (based on chemical composition), practical (based on usage) and geological (based on the mode of origin). Mineralogical classification is not a means of classifying stones in general. It's called chemical classification.

3. The hot molten material occurring naturally below the surface of the Earth is called:

- a) Lava
- b) Slag
- c) Magma
- d) Tuff

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Answer: c

Explanation: Hot molten material is called Lava when it erupts from a volcano and reaches the surface. Slag is waste material from the smelting of ore. Tuff is a porous rock formed by a consolidation of volcanic ash.

4. At what depth and rate is a hypabyssal rock formed?

- a) Slow cooling of magma at considerable depth
- b) Quick cooling of magma at a shallow depth
- c) Rapid cooling of magma at Earth's surface
- d) Rapid cooling of magma at a shallow depth

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Answer: b

Explanation: Plutonic rocks are formed by slow cooling of magma at considerable depth. Volcanic rocks are formed

near the surface of Earth by rapid cooling of magma. Hypabyssal rocks are formed at a quick rate of cooling of magma at considerably shallow depths.

5. What is a sedimentary deposit?

- a) Weathered product remains at site
- b) Weathered product carried away in solution
- c) Weathered product gets carried away agents
- d) Insoluble weathered product is carried away in suspension

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Answer: d

Explanation: Weathered product remains at site is called residual deposit. Weathered product carried away in solution is chemical deposit and Weathered product gets carried away agents is organic deposit.

6. Which factor disturbs the equilibrium of rocks, commencing metamorphism?

- a) Increase in temperature
- b) Decrease in temperature and pressure
- c) Increase in temperature and pressure
- d) Decrease in pressure

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Answer: c

Explanation: Rocks are stable at a temperature below 200°C and at the pressure existing. Any increase in above two factors can initiate the process of metamorphism. One factor alone is not sufficient to start metamorphism.

7. Which of the following is not a metamorphic change?

- a) Calcite to schist
- b) Limestone to marble
- c) Shale to slate
- d) Granite to gneisses

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Answer: a

Explanation: Calcite is a carbonate mineral whereas schist is a metamorphic rock formed by metamorphosis of mudstone/shale to the higher degree than slate.

8. Which of the following rocks are hard and durable?

- a) Argillaceous rocks
- b) Siliceous rocks
- c) Calcareous rocks
- d) Carbonaceous rocks

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Answer: b

Explanation: Silica predominates in siliceous rock and is less affected by weathering and hence are hard and durable compared to argillaceous (clay), calcareous (calcium carbonate) or carbonaceous (carbon).

9. Foliated structure is very common in case of:

- a) Sedimentary rocks
- b) Plutonic rocks
- c) Igneous rocks
- d) Metamorphic rocks

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Answer: d

Explanation: Foliated rocks can split up into layers along a definite direction only. Sedimentary rocks are generally stratified and igneous rocks are unstratified.

10. Granite is a type of:

- a) Plutonic rock
- b) Metamorphic rock
- c) Hypabyssal rock
- d) Volcanic rock

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Answer: a

Explanation: Granite is formed at a slow rate of cooling of magma at considerable depths and so is a type of plutonic rock.

Quarrying and Dressing of Stones

1. Which of the following is a hand tool used for quarrying?

- a) Plier
- b) Hammer
- c) Quarrying wire
- d) XSM

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Answer: b

Explanation: Plier is not used in quarrying. Quarrying wire is used for cutting stones at a site. XSM is a manufacturer of quarrying machines. Hammer is used to split rocks.

2. What is the relation between LLR (Line of Least Resistance) and amount of explosives to be used?

- a) Higher the LLR, higher the amount of explosive
- b) Higher the LLR, lesser the amount of explosive
- c) 10% more explosive for every 1m of LLR
- d) 10% less explosive for every 1m of LLR

[View Answer](#)

Answer: a

Explanation: LLR is the shortest distance travelled by the expelled gasses on blasting through a path which offers least resistance. Therefore, higher amount of explosives will result in higher LLR.

3. Which of the following is not an explosive used for blasting?

- a) Gelignite
- b) Gunpowder
- c) Flash powder
- d) Nitrocellulose

[View Answer](#)

Answer: c

Explanation: Flash powder is used primarily in fireworks and theatrical pyrotechnics. The other three are widely used in the quarrying field.

4. Which type of dressing does the figure below represent?



- a) Pitch faced dressing
- b) Furrowed finish
- c) Combed finish
- d) Fine tooling

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Answer: d

Explanation: Fine tooling involves removing projections till a fairly smooth surface is obtained. In pitch faced dressing, the edges are levelled and the flaws on the face of the stone is allowed to remain. In furrowed finish, a fixed margin is sunk on all sides with a central portion projecting. In the combed finish, a comb with steel teeth is rubbed on the surface.

5. What is used to accelerate the process of rubbing in rubbed finish dressing?

- a) Water
- b) Water and sand
- c) Clay
- d) Pebbles

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Answer: b

Explanation: In rubbed finish dressing, a piece of stone is rubbed against a surface or machine. Water and sand together act as accelerators and help in the rubbing action.

6. Dressing of stones is carried out to:

- a) To provide employment to people
- b) To make transport of stones to site easy and economic
- c) To reduce water content of stone
- d) To avoid further works on the stone

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Answer: b

Explanation: Dressing reduces the excess weight of the stone and helps in easy transport from the quarry to the site of use, also proving the process to be economic.

7. How many types of dressings are there with respect to the place of work?

- a) 4
- b) 3
- c) 2
- d) None

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Answer: c

Explanation: There are two types of dressings based on the place of work. They are quarry dressing and site dressing. Quarry dressing is carried out right after quarrying whereas site dressing is done after transporting the quarried rock to the site.

8. Circular finished stones are generally used for:

- a) Pillar
- b) Tombstone
- c) Landscaping
- d) Column

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Answer: d

Explanation: Circular finish dressing yields in a stone with a surface that is round and circular. This is exactly the type of dressed stone which meets the requirements of stone required for column construction.

9. Quarry faced finished stones are also called:

- a) Reticulated finish
- b) Hammer faced finished
- c) Rock faced stones
- d) Plain finish

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Answer: c

Explanation: Quarry faced finished stone is directly available from the quarry and has a smooth surface. It doesn't require any further dressing. They are also called self-faced stones.

10. Dynamite is a more effective explosive than gelignite.

- a) True
- b) False

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Answer: b

Explanation: Gelignite is more convenient to use and can be used underwater also. Hence, it's effective than dynamite.

11. What is sand blasting?

- a) Process of making carvings on stone surface

- b) Quarrying technique
- c) Dressing type
- d) Process of using sand to blast stone surface

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Answer: a

Explanation: It's used to carve or clean a surface with a high velocity jet of abrasive material (sand, walnut, steel bits, etc..).

[Properties of Stones](#)

1. For a good building stone how much is the required crushing strength?

- a) Less than 50 N/mm²
- b) Greater than 100 N/mm²
- c) 155 N/mm²
- d) 10 N/mm²

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Answer: b

Explanation: Crushing strength or compressive strength of a stone is the load per unit area at which the stone starts cracking. It should be greater than 100 N/mm² to ensure sufficient strength for use in construction.

2. Which of the following is a good fire-resistant stone?

- a) Clay
- b) Granite
- c) Quartz
- d) Limestone

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Answer: a

Explanation: Granite and Quartz undergo sudden expansion and flies into splinters. Limestone gets easily crumbled. Clay can withstand higher temperature and is used in pizza ovens, fireplaces, etc...

3. What is a freestone?

- a) Stone free from impurities
- b) Stone that doesn't require dressing
- c) Metamorphic stone
- d) Stone free from veins and planes of cleavage

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Answer: d

Explanation: For the ease of quarrying a stone must be soft, compact-grained, homogeneous, free from veins and planes of cleavage.

4. Why are stones with lighter shades of colour preferred?

- a) Easy to clean
- b) Easily available

- c) Don't spoil the appearance
- d) Darker shades are heavier

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Answer: c

Explanation: Even if the stone fades a little bit it will not show a striking difference and doesn't spoil the look of it. They don't need to be painted or maintained much compared to darker shades.

5. Hardness is an important parameter considered in the construction of:

- a) Slabs
- b) Walls
- c) Bridges
- d) Arches

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Answer: c

Explanation: It's required in structures subjected to heavy loading. Bridge is one such structure. Slabs, walls and arches are not subjected to heavy loadings as a bridge.

6. What is the required specific gravity for a good building stone?

- a) Greater than 2.7
- b) Less than 3
- c) Greater than 3
- d) Less than 2.7

[View Answer](#)

Answer: a

Explanation: As per IS standards. Heavy stones are used in the construction of abutments, dams, docks. Lighter ones are used in building construction.

7. The percentage absorption by weight of a good stone, after how many hours should not exceed .6?

- a) 6 hrs
- b) 12 hrs
- c) 48 hrs
- d) 24 hrs

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Answer: d

Explanation: As per IS standards, 24 hrs is the time a stone has to be immersed in water to check for water absorption. Time less or more than this would not result in providing the appropriate data.

8. What texture should a building stone possess?

- a) Loose grains
- b) Crystalline structure
- c) Cavities

d) Cracks

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Answer: b

Explanation: Texture is the grains composing the stone in the strata. Crystalline structure is the required texture. Other options are undesired textures.

9. Seasoning is required for stones.

a) True

b) False

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Answer: a

Explanation: A stone should be properly dried before using for structural works. The sap contained in freshly quarried stones will make them soft and lead to decay eventually.

10. Toughness index of a good stone should be more than:

a) 17

b) 18

c) 13

d) 19

[View Answer](#)

Answer: d

Explanation: Toughness is the ability to resist impact forces. A good building stone should have high toughness index to resist vibrations from machinery, moving loads, etc...
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11. A percentage wear of 3% indicates a good stone.

a) True

b) False

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Answer: b

Explanation: A percentage wear of less than 3% indicates a non-satisfactory stone. A percentage wear of 3% indicates a tolerable stone and greater than 3% indicates a good quality stone

[Tests on Stones](#)

1. Which test is used to find the rate of wear of stones?

a) Crushing test

b) Abrasion test

c) Attrition test

d) Acid test

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Answer: c

Explanation: Crushing test is used to find crushing strength of stones. Abrasion test to find suitability of stone for road work. Acid test is used to find the quality of the stone.

2. In what solution is the stone sample placed in an Acid test?

- a) HCl of strength .5%
- b) H₂SO₄ of strength .5%
- c) H₂SO₄ of strength 1%
- d) HCl of strength 1%

[View Answer](#)

Answer: d

Explanation: As per the test procedure, the sample weighing about .5 – 1 N is placed in a solution of HCl for 7 days.

3. Which IS code gives details regarding the tests for weathering on building stones?

- a) IS 1121 part 2
- b) IS 1125
- c) IS 1121 part 4
- d) IS 1126

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Answer: b

Explanation: IS 1121 part 2 gives details about transverse strength, IS 1121 part 4 about shear strength and IS 1126 about the durability of building stones.

4. For crushing test what is the size of a specimen to be used?

- a) 50 × 50 × 50mm
- b) 100 × 100 × 100mm
- c) 45 × 45 × 45mm
- d) 40 × 40 × 40mm

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Answer: d

Explanation: As per the IS codes, 40 × 40 × 40 mm size cube of stone is to be used to perform the crushing test. The specimen is then placed in compression testing machine (CTM) and loaded at 14 N/mm².

5. In abrasion test, what material is placed in addition to the specimen in the testing apparatus?

- a) Metal piece
- b) Stone piece smaller than specimen
- c) Cast iron ball
- d) Stainless steel ball

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Answer: c

Explanation: Abrasion test is used to check compatibility of stone with other material by allowing them to rub against each other, noting the wear resistance. Cast iron balls of 48 mm diameter are placed in the apparatus along with the specimen.

6. Which apparatus is used to test the hardness of stones?

- a) Los Angeles

- b) Deval's
- c) CTM
- d) Dorry's

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Answer: d

Explanation: Los Angeles is used for abrasion test, Deval's for attrition and CTM for compression or crushing test.

7. Which stone has a hardness of 7 in the Mohr's hardness scale?

- a) Quartz
- b) Calcite
- c) Gypsum
- d) Topaz

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Answer: a

Explanation: Mohr's hardness scale ranks stones according to their hardness numbers. Calcite has a hardness of 3, gypsum 2 and topaz 8.

8. Why CaSO_4 is not used in the crystallisation test?

- a) Costly compound
- b) Low solubility in water
- c) Increases time taken for test
- d) Releases toxic fumes

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Answer: b

Explanation: Crystallisation of CaSO_4 in pores causes decay of stones and the low solubility in water prevent the use of this compound in the test.

9. Which of the below given formulas is used to calculate hardness coefficient?

- a) $(\text{Final hardness} / \text{initial hardness}) \times 100\%$
- b) $20 - (\text{loss in weight} / 2)$
- c) $20 - (\text{loss in weight} / 3)$
- d) $((20 - \text{loss in weight}) / 3) \times 100\%$

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Answer: c

Explanation: The coefficient of hardness is expressed as a number and not a percentage.

10. What are the specifications for tamping rod used in impact test?

- a) 16 mm steel rod with rounded end
- b) 16 mm steel rod with square face
- c) 16 mm copper rod with rounded end

d) 16 mm copper rod with square face

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Answer: a

Explanation: According to the IS code 2386, a 16 mm steel rod with rounded edge is used for tamping the sample filled inside the cylinder in three layers, 25 times each.

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11. Why is attrition test performed?

- a) To find resistance to scratch
- b) To find resistance to weathering
- c) To find resistance to wear
- d) To find resistance to dressing

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Answer: c

Explanation: Attrition test is performed to test the rate of wear of stones that are used in road construction. It checks the rubbing against the same material of stone and is expressed in percentage.

12. What parameter is being checked for in freezing and thawing test?

- a) Weathering
- b) Durability
- c) Water absorption
- d) Texture

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Answer: b

Explanation: Durability refers to the resistance of stones to atmospheric conditions such as rain, heat, snow; temperature gradients; chemical impurities; cracks, creeps.

[Source and Classification of Sand](#)

1. What is sand composed of?

- a) Silica
- b) Silicon
- c) Silicon oxide
- d) Quartz

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Answer: a

Explanation: Sand is composed of small grains of silica (SiO_2). It's also called silicon dioxide.

2. Which of the following sand type is excellent for use in mortar and concrete work?

- a) Sea sand
- b) Clayey sand
- c) Pit sand

d) River sand

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Answer: c

Explanation: Pit sand doesn't contain any salts and has sharp, angular grains. These are the desired properties for a sand to be used for mortar and concrete.

3. At what depth should pit sand be excavated from?

a) 1 – 2 m from bed of water body

b) 1 – 2 m from ground surface

c) 1 – 2 cm from bed of water body

d) 1 – 2 cm from ground surface

[View Answer](#)

Answer: b

Explanation: Pit sand is found in Earth in deposits. It is obtained by forming pits in the soil. At a depth of 1 – 2 m from the ground surface, angular grained pit sand is obtained.

4. Which IS code gives the grading of sand?

a) IS 456

b) IS 383

c) IS 2368

d) IS 1542

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Answer: b

Explanation: IS code 383-1970 gives the classification of sand based on the grading. There are 4 grading zones. For each sieve size, there is a specific % of particle passing through that sieve, denoted in the respective zone.

5. What type of grains constitutes river sand?

a) Angular

b) Flaky

c) Irregular

d) Rounded

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Answer: d

Explanation: River sand is constituted of fine round grains. These are the result of mutual attrition under the effect of water current. It is naturally occurring, clean and mostly white in colour.

6. Sand is a fine grained component in soil.

a) True

b) False

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Answer: b

Explanation: Sand size lies in the range 4.75 mm to 75 microns. A fine grained component of a soil has a size less than 75 microns.

7. How many classifications are there for sand based on the grain size distribution?

- a) 3
- b) 2
- c) 5
- d) 4

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Answer: a

Explanation: There are three types of sands based on grain size distribution. They are fine (passes through 1.5875 mm sieve), coarse (passes through 3.175 mm sieve) and gravelly sand (passes through 7.62 mm sieve).

8. Fine sand is generally used for which of the following works?

- a) Masonry
- b) Concrete structures
- c) Plastering
- d) Grinding and polishing

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Answer: c

Explanation: Plastering is the act of applying a layer of plaster over a wall. It gives the wall a smooth and decorative appearance. Hence, for achieving the smoothness, fine grained sand is employed.

9. How is M-sand produced?

- a) Crushing bricks
- b) Quarrying
- c) Reusing the debris of demolished building
- d) Crushing granite stones

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Answer: d

Explanation: M-sand stands for Manufactured sand and contains cubical grains with rounded edges. These are the perfect replacement for sand to be used in construction works.

10. Which one of the following is not an advantage of using M-sand?

- a) Cost effective
- b) Available in single size
- c) Dust and impurity free
- d) Can be obtained from hard rock

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Answer: b

Explanation: M-sand is obtained by crushing specific hard rock and since it's manufactured in factories, any size can be manufactured depending on the need.

[Bulking of Sand](#)

1. What is the meaning of bulking of sand?

- a) Increase in volume of sand due to moisture absorption
- b) Increase in weight of sand due to moisture absorption
- c) Increase in mass of sand due to moisture absorption
- d) Increase in strength of sand due to moisture absorption

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Answer: a

Explanation: When water is added to sand, a thin film of water is formed around the sand particles. The film exerts surface tension on particles, making them move apart. This leads to an increase in volume because there is no direct contact among particles.

2. How is bulking related to moisture content?

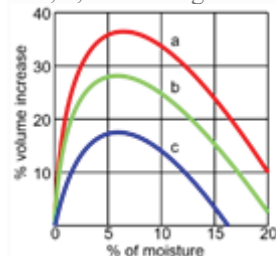
- a) Keeps on increasing with moisture content
- b) Increases to a certain point and then decreases
- c) Keeps on decreasing with moisture content
- d) Decreases to a certain point and then increases

[View Answer](#)

Answer: b

Explanation: The volume i.e. bulking increases as sand absorbs moisture. At about 6- 10%, the film starts breaking and the volume reduces. If sand absorbs further moisture, no bulking takes place.

3. a, b, c in the figure below in order are:



- a) coarse, fine, medium grained sand
- b) fine, coarse, medium grained sand
- c) medium, fine, coarse grained sand
- d) fine, medium, coarse grained sand

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Answer: d

Explanation: As fine grained sands have higher voids than medium and coarse grained sands, the percentage of moisture absorbed and the percentage volume increase is the highest.

4. What happens if bulking is not accounted for while preparing concrete?

- a) Concrete gets hardened
- b) Concrete is not affected
- c) Concrete gets softened

d) Concrete becomes watery

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Answer: a

Explanation: If care is not taken while volume batching, concrete is likely to be undersanded and gets hard eventually.

5. By how much percentage does the volume increase when the moisture content is 5-10%?

a) 10-20%

b) 20-40%

c) 30-40%

d) 20-30%

[View Answer](#)

Answer: b

Explanation: The studies on bulking have shown this result. It is visible in the graphical representation of bulking also.

6. How is particle size of sand related to bulking?

a) Not related

b) Directly proportional

c) Inversely proportional

d) Shows variable relation

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Answer: c

Explanation: Finer particle size will have more voids compared to coarser ones. They tend to absorb more water and hence exhibit more bulking.

7. What does 'h' represent in the formula used to calculate the bulking factor?

a) Height of jar

b) Height of saturated sample

c) Height of dry sample

d) Height of water

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Answer: b

Explanation: The formula used to calculate bulking factor is $(H-h/h) \times 100\%$. 'H' represents height to which dry sand sample is filled in jar and 'h' represents the height of the saturated sample.

8. Bulking is the phenomenon applicable to both fine and coarse aggregates.

a) True

b) False

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Answer: b

Explanation: Bulking is possible only in fine aggregates. In coarse aggregate, size of particle is large, void space is less and so water absorption is not possible up to the extent of fine aggregates.

9. Sand does not show any bulking when:

- a) Completely saturated
- b) Partially saturated
- c) Contains small amount of impurities
- d) Voids are partially filled with air

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Answer: a

Explanation: A completely saturated sand has no void space left to absorb any more water and undergo bulking.

10. What effect does bulking have on fresh concrete?

- a) Strength reduces
- b) Shrinkage increases
- c) Volume reduces
- d) Workability increases

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Answer: d

Explanation: The excess water in the sand can be used to maintain water-cement ratio. It improves workability and hence it is easier to place fresh concrete. Strength is a property of hardened concrete.

[Properties of Sand](#)

1. The fineness modulus of sand lies in the range:

- a) 1-2
- b) 0.5-1
- c) 2-3
- d) 2.5-3.5

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Answer: c

Explanation: Fineness modulus is an index number which represents average size of sand particles. It is calculated after conducting sieve analysis.

2. An ideal sand should comprise of which of the following grain types?

- a) Cubical, fine
- b) Angular, coarse
- c) Round, coarse
- d) Irregular, fine

[View Answer](#)

Answer: b

Explanation: For sand to be used in every type of construction, the grains must suit all requirements. Angular, coarse grained sand is the one suitable for all work.

3. Sand in mortar helps in adjusting the strength requirements:

- a) True

b) False

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Answer: a

Explanation: The grade and amount of sand used in making mortar help in adjusting the strength parameter. It also helps in increasing resistance against crushing.

4. A sand is not said to be ideal if:

- a) Chemically inert
- b) Free from organic salts
- c) Is soft
- d) Contains silicon dioxide

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Answer: c

Explanation: An ideal sand should be hard and not soft. It will be difficult to work with if it is soft.

5. Sands should pass through:

- a) BIS 480 sieve
- b) BIS 8 sieve
- c) BIS 5 sieve
- d) BIS 6 sieve

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Answer: a

Explanation: The particle size of sand is between 4.75mm and 75 microns. BIS 480 sieve represents 4.75mm sieve opening.

6. Bulking of sand increase the strength of the mortar.

- a) True
- b) False

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Answer: b

Explanation: Bulking increases volume of mortar and not the strength. In fact, it decreases the strength, leading to future cracks in the structure.

7. The solution used to test impurities in the sand in field is:

- a) Sodium sulphate
- b) Sodium hydroxide
- c) Sodium nitrate
- d) Sodium chloride

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Answer: b

Explanation: A small amount of sand is added to a solution of sodium hydroxide and stirred. If colour changes to brown, presence of impurity is detected.

8. What is the maximum percentage of silt allowed in sand to be used in concrete?

- a) 5%
- b) 10%
- c) 8%
- d) 2%

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Answer: c

Explanation: If more silt content is present, it will lead to the improper measurement of volume or weight. It should be washed off to bring it to the allowable limit.

9. Which one of the below cannot to be used as a substitute of sand?

- a) Surkhi
- b) Quarry dust
- c) Glass
- d) M-sand

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Answer: b

Explanation: Surkhi is pieces of burned clay, M-sand is manufactured sand, glass can be powdered and these form excellent substitutes for sand. Quarry dust has flaky grains and is not recommended to use in concrete or masonry works, though it can be used for low strength works.

10. The density of wet sand is:

- a) 1922 kg/m³
- b) 1682 kg/m³
- c) 1281 kg/m³
- d) 1522 kg/m³

[View Answer](#)

Answer: a

Explanation: 1682 kg/m³ is density of rammed sand, 1281 kg/m³ is density of dry sand and 1522 kg/m³ is of silica sand.

[Source and Classification of Lime](#)

1. By which of the following ways is lime obtained?

- a) Naturally
- b) Quarrying
- c) Burning limestone
- d) Crushing limestone

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Answer: c

Explanation: It is not available naturally. It is obtained by burning limestone, shells of sea animals and boulders of limestone from old river beds.

2. Which of the following pairs is matched properly?

- a) Class A – Concrete work
- b) Class B – Mortar
- c) Class C – Masonry work
- d) Class D – White washing

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Answer: b

Explanation: Based on percentage of CaCO_3 in limestone, lime is classified into 3 – Class A, B & C. Class A is used for masonry work, Class C is used for white washing and there is no class D.

3. Lime has been conventionally classified into how many types?

- a) 4
- b) 2
- c) 5
- d) 3

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Answer: d

Explanation: The three conventional classifications of lime are, Fat Lime, Hydraulic Lime and Poor Lime.

4. Which of the following is a property of Fat Lime?

- a) Shakes very slowly
- b) Contains clay
- c) High degree of plasticity
- d) Poor binding property

[View Answer](#)

Answer: c

Explanation: Fat Lime is pure lime. The rest of the 3 options describe properties of poor lime.

5. Lime obtained from calcination of Pure Limestone is called:

- a) Quick Lime
- b) Pure Lime
- c) Lean Lime
- d) Rich Lime

[View Answer](#)

Answer: a

Explanation: Quick lime is pure limestone product. It consists of oxides of calcium and is not crystalline. Pure Lime and Rich Lime are different names of Fat Lime. Lean Lime is also another name of Poor Lime.

6. What is the speciality of Hydraulic Lime?

- a) Contains impurities
- b) Does not set under water

- c) Contains clay
- d) Perfectly white in colour

[View Answer](#)

Answer: c

Explanation: The clay content gives it the hydraulic property – capacity to set and harden even under water.

7. Which of the following slakes after few minutes?

- a) Moderately Hydraulic Lime
- b) Eminently Hydraulic Lime
- c) Perfectly Hydraulic Lime
- d) Feebly Hydraulic Lime

[View Answer](#)

Answer: d

Explanation: Hydraulic Lime slakes at a slower rate than Pure Lime. It is subdivided into three – Feebly Hydraulic, Moderately Hydraulic (1-2 hrs) and Eminently Hydraulic (slakes with difficulty).

8. Which of the following types of Lime does not exist?

- a) Dolomitic Lime
- b) Roman Lime
- c) Semi-Hydraulic Lime
- d) Selentic Lime

[View Answer](#)

Answer: b

Explanation: Semi-Hydraulic Lime contains lesser clay content than Hydraulic Lime. Dolomitic Lime comprises of high magnesium carbonate (35-46%) content. Selentic Lime is cement of grey chalk, with added gypsum. Roman Lime does not exist, instead there is Roman Concrete which is obtained by mixing lime and volcanic ash.

9. Which of the following ions causes the cement to set quickly?

- a) Sulphate
- b) Carbonate
- c) Chloride
- d) Nitrate

[View Answer](#)

Answer: a

Explanation: Sulphate arrests slaking and hence cement can set quickly and become stronger.

10. Lime is widely used for:

- a) Waste water treatment
- b) Manufacturing tiles
- c) Jewellery making
- d) As an aggregate

[View Answer](#)

Answer: a

Explanation: Hydrated Lime is a highly efficient pH increasing agent. It is used as a primary coagulant for waste water treatment and contributes to the clarity of the water.

[Calcination and Slaking of Lime](#)

1. Which of the following methods yields quick, small supplies of Quick Lime?

- a) Intermittent kiln
- b) Continuous kiln
- c) Clamp burning
- d) Kankar burning

[View Answer](#)

Answer: c

Explanation: In a kiln, lime is produced in large quantities for commercial purpose. In clamp burning, available quantity of limestone is stacked with fuel and burnt.

2. How is the arrangement in a clamp, if the fuel used is coal?

- a) Stacked in alternate layers
- b) Placed on a platform
- c) Mixed and poured into a basin
- d) Heaped

[View Answer](#)

Answer: d

Explanation: If fuel used is wood, they are stacked together in alternative layer. In case of coal or charcoal, it is mixed with limestone and placed in heap form.

3. How can one understand the completion of the burning of lime?

- a) Blue flame at the top disappears
- b) Blue flame appears at the top
- c) Smoke is released in huge quantity
- d) Red flame appears at the top

[View Answer](#)

Answer: a

Explanation: A blue flame indicates complete combustion, implying no wastage of resources. Hence, we can ensure the proper burning of lime.

4. The term Calcination comes from:

- a) Greek word Calcinare
- b) Latin word Calcinare
- c) Greek word Calcinate
- d) Latin word Calcinate

[View Answer](#)

Answer: b

Explanation: Calcinare is a Latin word. It means to burn lime, hence calcination is accorded to as burning of Lime.

5. Which of the following is not an example of Calcination process?

- a) Decomposition of Calcium Chlorate
- b) Decomposition of volatile matter in petroleum coke
- c) Removal of ammonium ions in synthesis of zeolites
- d) Decomposition of hydrated minerals

[View Answer](#)

Answer: a

Explanation: All the other process leads to burning or thermal decomposition of lime in some forms. Calcium Chlorate decomposes into calcium chloride and oxygen.

6. The temperature at which standard Gibbs free energy is zero for calcination reaction is called:

- a) Absolute temperature
- b) Negative temperature
- c) Transition temperature
- d) Thermal decomposition temperature

[View Answer](#)

Answer: d

Explanation: Transition temperature is for phase transitions. Absolute temperature is measured relative to absolute zero. Negative temperature is the one measured below zero.

7. In which feed type kiln, limestone does not come in contact with fuel?

- a) Single feed
- b) Isolated feed
- c) Separate feed
- d) Mixed feed

[View Answer](#)

Answer: c

Explanation: There are only 2 feed types of kiln – namely mixed and separate. In mixed feed type, fuel and limestone are mixed together during burning.

8. Which one of the following is an advantage of Kiln burning over clamp burning?

- a) Burning is not complete
- b) Requires more fuel
- c) No wastage of lime
- d) Time effective

[View Answer](#)

Answer: d

Explanation: Clamp burning takes weeks to burn limestone, whereas kiln burning takes only hours. Kiln burning operation involves loading, burning, cooling and unloading. All these lead to wastage of lime in some amount.

9. Slaking of lime refers to:

- a) Mixing NaCl in hydraulic lime

- b) Mixing water in quick lime
- c) Mixing water in limestone
- d) Mixing NaCl in quick lime

[View Answer](#)

Answer: b

Explanation: Slaking refers to the process of mixing water in quick lime. Only after this, it can be used in construction works.

10. How many brick lined tanks are used in tank slaking method?

- a) 2
- b) 1
- c) 4
- d) 3

[View Answer](#)

Answer: a

Explanation: Two tanks are used for tank slaking method. One is constructed 45cm deep, at a higher level. Other one adjoining the first one is constructed 60-75cm deep, at lower level.

11. In tank slaking, the second tank (60-75cm deep) is filled with:

- a) Water
- b) Lime-milk
- c) Lime
- d) Limestone

[View Answer](#)

Answer: b

Explanation: Lime is gradually added to water present in the first tank and stirred continuously. It results in formation of milk of lime, which is allowed to fall through a sieve into the second tank.

12. The lime-milk can be utilized after and for:

- a) 2-3 days for putty
- b) 2-3 hours for putty
- c) 2-3 days for waste water treatment
- d) 2-3 hours for waste water treatment

[View Answer](#)

Answer: a

Explanation: The lime-milk is allowed to stand for the requisite time of 2-3 days. It matures itself and forms lime putty.

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13. The quantity of water to be added for hydrating 100kg of lime is:

- a) 10 litres
- b) 1 litre

- c) 15 litres
- d) 32 litres

View Answer

Answer: d

Explanation: Quantity of water to be added depends on composition of lime, method of slaking, form of lime required (dry or putty). Practically water up to 100 litres can also be added for lime putty.

14. Rate of hydration (slaking) does not depend on:

- a) Degree of burning of lime
- b) Degree of agitation
- c) Atmospheric conditions
- d) Composition of lime

View Answer

Answer: c

Explanation: Over and under burned lime is undesirable. Composition of lime (pure, clay) are important to determine slaking. Pure lime slakes vigorously. Slaking is carried in tank in closed conditions. Too little agitation results in uneven mixing and leads to drowning or unhydrated particles of CaO.

15. Why is the middle portion in a continuous kiln widened?

- a) To accommodate more fuel
- b) To collect lime at bottom
- c) To allow the flow of limestone from top
- d) To accommodate hot gases of combustion

View Answer

Answer: d

Explanation: The kiln has two sections – upper one to store limestone and lower one to collect lime. As burning continues, hot gases are released. These are then accommodated in the middle portion.

[Properties of Cement](#)

1. Why is natural cement used very limitedly?

- a) Brown in Colour
- b) Standard consistency is not met with
- c) Sets too quickly
- d) Particle size is too fine

View Answer

Answer: c

Explanation: Natural cement sets very quickly after the addition of water and hence it is not quite workable. Artificial cement is preferred over this.

2. Who invented Portland cement and in which year?

- a) William Aspdin, 1824
- b) William Aspdin, 1840s

c) Joseph Aspdin, 1840s

d) Joseph Aspdin, 1824

[View Answer](#)

Answer: b

Explanation: Joseph Aspdin patented Portland cement in 1824. William Aspdin, his son is regarded as the inventor of modern Portland cement due to his developments in 1840s.

3. What is the average particle size of cement?

a) 15 microns

b) 45 microns

c) 75 microns

d) 100 microns

[View Answer](#)

Answer: a

Explanation: Approximately 95% of cement particles are smaller than 45 microns and the average particle size is 15 microns.

4. What is the meaning of soundness of cement?

a) Ability to flow when mixed

b) Ability to make ringing noise when struck

c) Ability to form strong and sound structure

d) Ability to retain volume after setting.

[View Answer](#)

Answer: d

Explanation: When cement paste hardens and sets, it should not undergo any volume change. Soundness ensures this and is tested using Autoclave expansion test.

5. Time elapsed from the instance of adding water until paste ceases to behave as fluid is called:

a) Initial setting time

b) Final setting time

c) Intermediate setting time

d) Absolute setting time

[View Answer](#)

Answer: a

Explanation: Final setting time is the time required for cement paste to reach a certain state of hardness. Option c and d does not exist.

6. Which of the below mentioned is not a result of field test performed on cement?

a) There should not be any lumps

b) It should feel cold when you put your hand in bag of cement

c) The colour should be blackish grey

d) It should not be gritty when rubbed with finger

[View Answer](#)

Answer: c

Explanation: The colour of cement is normally grey with a greenish tint. There are different shades – lighter and darker, but it does not go as dark as blackish grey.

7. Which equipment is used to test the setting time of cement?

- a) Core cutter
- b) Vibrator
- c) Universal testing machine (UTM)
- d) Vicat apparatus

[View Answer](#)

Answer: d

Explanation: Core cutter is used to determine dry density of soil. Vibrator is used in sieve analysis. UTM can be used to test various parameters – tension, bending, shear of various materials. Vicat apparatus consists of a needle, used to penetrate the cement paste sample.

8. What is the initial setting time of cement?

- a) 1 hour
- b) 30 minutes
- c) 15 minutes
- d) 30 hours

[View Answer](#)

Answer: b

Explanation: As per IS code 4031-part 5, the initial setting time of cement is minimum of 30 minutes. After this cement will start losing its plasticity and will not be workable.

9. Use of coarser cement particles leads to:

- a) Low durability
- b) Higher strength
- c) Low consistency
- d) Higher soundness

[View Answer](#)

Answer: a

Explanation: For coarser particles, hydration starts on the surface of particles, hence, it might not be completely hydrated. This causes low strength and low durability.

10. Wet cement can cause severe skin burns if not washed off with water immediately.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Cement is highly alkaline and setting process is exothermic. Wet cement is strongly caustic and causes

skin burns. Similarly, dry cement causes eye or respiratory irritation, when it comes in contact with mucous membranes.
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11. Green cement is:

- a) Green coloured cement
- b) Cement mixed with plant products
- c) Cement mixed with recycled materials
- d) Cement mixed with green algae

[View Answer](#)

Answer: c

Explanation: Green cement is a cementitious material which employs the use of optimized recycled materials. These can meet or even exceed the functional performance of Portland cement.

12. What is the depth the needle in Vicat apparatus should penetrate into the cement paste in consistency test?

- a) 33-35 cm from bottom of the mould
- b) 33-35 mm from top of the mould
- c) 33-35 cm from top of the mould
- d) 33-35 mm from bottom of the mould

[View Answer](#)

Answer: b

Explanation: The best procedure has been clearly mentioned in IS 4031 Part 4. According to the code, 33-35mm depth of penetration is ideal.

[Ingredients of Cement](#)

1. What is the most dominant constituent of cement?

- a) Silica
- b) Lime
- c) Magnesia
- d) Alumina

[View Answer](#)

Answer: b

Explanation: Cement contains about 60-65% of lime. Silica constitutes 17-25%, alumina 3-8% and magnesia 1-3%.

2. Deficiency of lime in cement leads to:

- a) Unsound cement
- b) Disintegration of cement
- c) Quick setting of cement
- d) Expansion of cement

[View Answer](#)

Answer: c

Explanation: Presence of lime in sufficient quantity is necessary to form silicates and aluminates of calcium. Excess lime leads to expansion, disintegration and unsoundness of cement.

3. What effect does calcium sulphate have on cement?

- a) Retards setting action
- b) Acts as flux
- c) Imparts colour
- d) Reduces strength

[View Answer](#)

Answer: a

Explanation: Calcium sulphate is found in cement in the form of gypsum. It slows down the setting time of cement.

4. Which of the following adds a quick-setting property to cement?

- a) Magnesium oxide
- b) Silicon dioxide
- c) Iron oxide
- d) Aluminium oxide

[View Answer](#)

Answer: d

Explanation: Aluminium Oxide or Alumina is present in small quantity in cement and it helps in a quick-setting property.

5. Which of the following imparts greenish grey colour to cement?

- a) Calcium silicate
- b) Calcium aluminate
- c) Calcium aluminate ferrite
- d) Calcium carbonate

[View Answer](#)

Answer: c

Explanation: Calcium silicate and calcium aluminate are pure white minerals. Calcium aluminate ferrite is brown in colour, but due to absorption of light by magnesium, present as an impurity, greenish grey colour is imparted to cement.

6. Excess of Alkali in cement results in:

- a) Dry cement paste
- b) Efflorescence
- c) Less plasticity
- d) Unsound cement

[View Answer](#)

Answer: b

Explanation: Efflorescence is the formation of powdery substance on the surface of masonry or concrete work. Alkalis usually get carried away by flue gases during heating. In excess quantity, they result in alkali-aggregate reaction.

7. What function does iron oxide perform in cement?

- a) Increases strength
- b) Makes cement sound
- c) Increases setting time
- d) Acts as flux

[View Answer](#)

Answer: d

Explanation: Iron oxide acts as a flux, in addition to being responsible for imparting colour to cement. If the temperature goes higher, then iron oxide reacts with aluminium and calcium and results in the formation of calcium aluminate ferrite.

8. How many major ingredients are present in the composition of cement?

- a) 8
- b) 5
- c) 10
- d) 6

[View Answer](#)

Answer: a

Explanation: There are 8 main ingredients present in cement. They are lime, silica, alumina, magnesia, iron oxide, calcium sulphate, sulphur trioxide and alkalis.

9. Sulphur in cement is present in what amount?

- a) 0.5 – 6 g
- b) 1 – 2.5%
- c) 0.5 – 6%
- d) 1 – 2.5g

[View Answer](#)

Answer: b

Explanation: The presence of ingredients is expressed in percentage. Iron oxide is present in 0.5-6% and sulphur 1-2.5%.

10. An excess of magnesium oxide after 5% is harmful to cement.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Excess of magnesium causes problems in structures built with this cement. It causes cracks in both mortar and concrete after they harden.

[Manufacture of Cement](#)

1. Nowadays, wet method of cement manufacturing is used.

- a) True

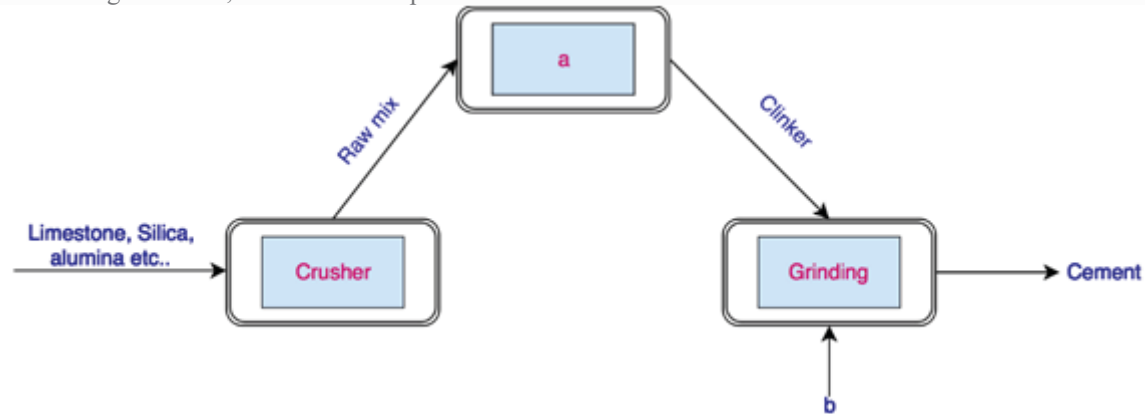
b) False

[View Answer](#)

Answer: b

Explanation: Wet method was used from 1913 to 1960. The dry method is most adopted because it improves the quality of cement, utilizing less power.

2. In the figure below, what does 'a' represents?



a) Combustion chamber

b) Wash mill

c) Kiln

d) Dryer

[View Answer](#)

Answer: c

Explanation: After the raw materials are mixed thoroughly, they need to be burned. Hence, 'a' in the figure stands for kiln.

3. In the same figure in question 2, what is 'b' and its function?

a) Water-plasticity

b) Lime-strength

c) Sulphur-soundness

d) Gypsum-control setting

[View Answer](#)

Answer: d

Explanation: During the grinding process, small amount of gypsum is added. It is done to control the setting of cement.

4. How is the argillaceous material used in the manufacture of cement stored?

a) Silos

b) Basins

c) Bags

d) Storage tanks

[View Answer](#)

Answer: b

Explanation: Clay is the argillaceous material used. These are mixed with water thoroughly and washed in a container-wash mill. The wet mixture is then stored in basins.

5. Which one of the below is rarely used as fuel in burning stage of wet process of cement manufacturing?

- a) Wood
- b) Gas
- c) Pulverised coal
- d) Fuel oil

[View Answer](#)

Answer: a

Explanation: Clinkers are formed at a temperature of 1450° c. Wood burns at a temperature of 593°c, natural gas at 2000°c, coal at 3500°c and oil at 2150°c. Wood cannot offer higher temperature at lower cost, time and energy.

6. How much does a bag of cement weigh?

- a) 1 kg
- b) 25 kg
- c) 50 kg
- d) 35 kg

[View Answer](#)

Answer: c

Explanation: The weight of one bag of cement is 50 kg everywhere. It is the standard measurement. In the manufacturing unit of cement, it is packed in bags of 50kg.

7. What is released during the production of clinker?

- a) CaCO_3
- b) CO_2
- c) $\text{Ca}(\text{OH})_2$
- d) CO

[View Answer](#)

Answer: b

Explanation: Specifically, CO_2 is released during calcination of limestone, which goes on to form clinkers ahead. It occurs in upper, cooler end of kiln (precalciner) at temperatures of 600-900°c.

8. What is the advantage of using precalciner?

- a) Fine grained cement
- b) Larger clinker size
- c) Fuel efficiency
- d) Sound cement

[View Answer](#)

Answer: c

Explanation: Almost 95% of calcination is completely over in the precalciner, if 50-60% of fuel is added to this chamber. Hence fuel in the kiln required is less.

9. Which stone provides the calcareous component required for the manufacture of cement?

- a) Lime
- b) Limestone
- c) Marble
- d) Granite

View Answer

Answer: b

Explanation: Calcareous component used for cement manufacture is calcium carbonate. It is obtained by quarrying limestone.

10. Shale provides argillaceous components required for cement manufacture process.

- a) True
- b) False

View Answer

Answer: a

Explanation: Quarrying shale stone gives the argillaceous component. These are silica, aluminium and iron.
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11. Which one of the below is not a feature of cement Kiln?

- a) Employs alternate fuels
- b) Natural alkaline environment
- c) High temperature
- d) Portable

View Answer

Answer: d

Explanation: Cement kiln is highly efficient as it incorporates preheater, precalciner, uses alternative fuels-bio fuels, recycled waste, etc. It requires space and is permanently installed in one place. Rotary kiln is the one that is portable.

[Types of Cement and Uses](#)

1. What is the abbreviation of PPC?

- a) Perfect Portland Cement
- b) Portland Produced Cement
- c) Portland Pozzolana Cement
- d) Productive Portland Cement

View Answer

Answer: c

Explanation: Pozzolana is a material containing silica. PPC is formed by intergrinding ordinary Portland cement, clinker, gypsum and pozzolanic material.

2. Which of the following is not an advantage of rapid hardening cement?

- a) Faster construction
- b) Short curing period

- c) Light in weight
- d) Higher final setting time

[View Answer](#)

Answer: d

Explanation: The initial and final setting time of rapid hardening cement is the same as that of ordinary cement. It attains higher strength in less time. It develops the same strength of ordinary cement in four days rather than 28 days.

3. High alumina cement can be used for massive concrete work.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: High alumina cement is obtained by adding 55% bauxite and 35-45% lime. It hardens rapidly and it is costlier. It cannot be used for massive concrete work.

4. How many types of cement are there based on the ability to set in presence of water?

- a) 2
- b) 3
- c) 4
- d) 5

[View Answer](#)

Answer: a

Explanation: The 2 types are hydraulic and non-hydraulic cement. Hydraulic cement sets and becomes adhesive due to reaction with water. Non-hydraulic cement does not set under-water or in wet conditions.

5. What property does air-entraining cement provide?

- a) Workability
- b) Soundness
- c) Fineness
- d) Strength

[View Answer](#)

Answer: a

Explanation: Air-entraining agents are added to cement during manufacturing. These create voids and in turn increases workability when used in concrete.

6. Which of the following types of cement is used in marine structures?

- a) Expanding cement
- b) High alumina cement
- c) Blast furnace slag cement
- d) White cement

[View Answer](#)

Answer: c

Explanation: Blast furnace slag cement is obtained by combining slag and cement clinkers. These have less heat of hydration and are not affected by sea water. Hence, can be used for marine structures.

7. Which pair of the compound and coloured cement mentioned below is wrong?

- a) Iron oxide-yellow
- b) Cobalt-black
- c) Chromium oxide-green
- d) Manganese dioxide-brown

[View Answer](#)

Answer: b

Explanation: Cobalt imparts blue colour to cement. Iron oxide in different proportion imparts brown, red and yellow colour. Manganese dioxide produces brown and black coloured cement.

8. Low heat cement is ideal for use in the construction of dams.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Heat of hydration is heat produced during chemical action between cement and water. In mass concreting works (dam) heat will be high and effect the stability of a structure. Hence, low heat cement is ideal for use.

9. Which of the following is not a pozzolanic material?

- a) Fly ash
- b) Silica fume
- c) Cinder
- d) Slag

[View Answer](#)

Answer: c

Explanation: Pozzolans are silicate based materials that form cementitious materials. Fly ash, silica fumes and slag are composed of oxide of silicon. Cinder is a coal residue.

10. Water proof cement is prepared by mixing ordinary cement with:

- a) Resins
- b) Water repellent chemicals
- c) Sulpho-aminatate
- d) Metal stearates

[View Answer](#)

Answer: d

Explanation: Resins are added in air entraining cement. Water repellent chemicals in hydrophobic cement. Sulpho-aminatate is added in expanding cement. Metal stearates (Ca, Al, etc) are added in small percentage during grinding to get water proof cement.

[Grades of Cement](#)

1. What does grade 33 cement indicate?

- a) Tensile strength of 33 kN/m²
- b) Tensile strength of 33 N/mm²
- c) Compressive strength of 33 kN/m²
- d) Compressive strength of 33 N/mm²

[View Answer](#)

Answer: d

Explanation: The grades of cement are specified by IS 1489-1991. Cements are usually graded based on their compressive strength.

2. Ordinary Portland cement (OPC) has been classified into how many grades?

- a) 2
- b) 3
- c) 10
- d) 5

[View Answer](#)

Answer: b

Explanation: There was only one grade of OPC before 1987 and was according to IS 269-1976. It was revised in 1991 and IS 1489-1991 included 3 grades namely, 33 grade, 43 grade and 53 grade.

3. Grade 43 OPC is used widely for:

- a) High rise buildings
- b) Plastering
- c) House construction
- d) Finishing works

[View Answer](#)

Answer: c

Explanation: Grade 43 OPC has higher strength than grade 33 and lower than grade 53. Grade 33 used for finishing works under normal condition. Grade 53 is used for high rise building.

4. After how many days is the strength of cement is tested and graded according to the result?

- a) 7 days
- b) 28 days
- c) 1 day
- d) 14 days

[View Answer](#)

Answer: b

Explanation: Cement blocks are prepared to test their compressive strength. With proper curing and attaining strength, these can be tested. It requires 28 days to fully cure and attain the strength of required grade, say 43 N/mm² for grade 43 OPC.

5. The compressive strength of OPC increases with time:

- a) True

b) False

[View Answer](#)

Answer: a

Explanation: Cement blocks can be tested at 1 day, 3 days, 7 days and 28 days. Usually 1 day doesn't give any result. Strength of 43 grade OPC at the end of 3 days is 23, 7 days is 33 and 28 days is 43. So, it increases with time.

6. Grade 43 OPC shall be rejected if it remains in bulk storage in the factory for:

- a) More than 3 months
- b) More than 1 month
- c) More than 6 months
- d) More than 4 months

[View Answer](#)

Answer: c

Explanation: Cement stored in the factory of more than 6 months has to be retested and rejected if it does not meet requirements. Time period of more than 3 months is for cement bags with vendors.

7. The ratio of percentage of alumina to iron oxide in OPC 43 grade is:

- a) 3.5
- b) 0.66
- c) 0.1
- d) 0.05

[View Answer](#)

Answer: b

Explanation: It is mentioned in IS 8112:2013 Table 2. 3.5 is the total sulphur content, 0.1 is chloride content and 0.05 is alkali content.

8. What is the required minimum fineness for grade 53 OPC?

- a) 370 m²/kg
- b) 370 cm²/g
- c) 580 m²/kg
- d) 580 cm²/g

[View Answer](#)

Answer: a

Explanation: The value is in accordance with the IS code 12269 for 53 grade OPC. Table 3 gives physical requirements and fineness is one of them.

9. Which of the following cannot be added in 33 grade OPC after burning stage?

- a) Gypsum
- b) Water
- c) Colouring Agents
- d) Clay

[View Answer](#)

Answer: d

Explanation: The details and specifications regarding the manufacture of 33 grade OPC are mentioned in IS 269. It says that after burning, only certain element like gypsum, water, performance enhancers, colouring agent can be added. More raw material-clay cannot be added.

10. How much maximum percentage by mass of performance improvers can be added in grade 33 OPC?

- a) 0.5
- b) 1
- c) 5
- d) 0.1

[View Answer](#)

Answer: c

Explanation: Performance improvers include fly ash, slag, rice husk, ash, etc. These can be added in quantity of 5% by mass as per Table 1 given in IS 269.

[Composition of Good Brick Earth](#)

1. How many constituents are there in the brick earth?

- a) 5
- b) 4
- c) 6
- d) 8

[View Answer](#)

Answer: a

Explanation: For a good brick earth, 5 major constituents are needed. They are alumina, silica, lime, oxides of iron and magnesia.

2. Which one of the below is the most important ingredient in the brick earth?

- a) Alumina
- b) Lime
- c) Silica
- d) Magnesia

[View Answer](#)

Answer: c

Explanation: The amount of silica present in brick earth is 50-60% and it prevents cracking and warping of raw bricks.

3. In what form should lime be present in the brick earth?

- a) Paste
- b) Lump
- c) Clinker
- d) Powder

[View Answer](#)

Answer: d

Explanation: Lime should be present in the brick earth in the form of very finely powdered state so as to prevent the flaking of bricks.

4. Excess of oxides of iron makes the brick:

- a) Red in colour
- b) Black in colour
- c) Dark blue in colour
- d) Yellow in colour

[View Answer](#)

Answer: c

Explanation: Iron oxide imparts the red colour to the brick. Presence of magnesia makes brick yellowish and manganese makes it black. Excess of oxides of iron makes the brick dark blue on burning.

5. What happens to raw bricks if an excess of alumina is present?

- a) Becomes hard
- b) Becomes brittle
- c) Decay
- d) Shrinkage

[View Answer](#)

Answer: d

Explanation: Raw bricks develop shrinkage, cracks, warping in presence of excess alumina. Other three changes happen on burnt bricks or final brick product due to excess of other constituents.

6. What is the harmful effect of presents of alkali in brick earth on bricks?

- a) Discolourises bricks
- b) Efflorescence
- c) Porous bricks
- d) Flaking

[View Answer](#)

Answer: b

Explanation: Alkali exists in the form of soda and potash. Alkalies absorb moisture and with a passage of time, it gets evaporated, leaving white powdery deposits called efflorescence.

7. Why do bricks become brittle when excess silica is present?

- a) Pores are created
- b) Flaking occurs
- c) Thermal stability is lost
- d) Cohesion is lost

[View Answer](#)

Answer: d

Explanation: Silica is present in either free or combined form. It is usually present as sand, which is cohesionless in nature. So, excess of silica would lead to loss of cohesion between particles and this makes the brick brittle.

8. Which of the following leads to the formation of small pores in brick?

- a) Iron pyrites
- b) Pebbles
- c) Organic matter
- d) Alkalis

[View Answer](#)

Answer: c

Explanation: Organic matter aids in the burning process. If it does not get burnt completely, gases are released which will lead to the formation of small pores, making brick porous.

9. The presence of which of the below renders clay totally unsuitable for brick manufacture?

- a) Kallar
- b) Kankar
- c) Hay
- d) Lime

[View Answer](#)

Answer: a

Explanation: Kallar or Reh consists of sodium sulphate. Bricks do not burn properly in its presence. After burning, it causes the surface of brick to peel off and crumble later on.

10. Carbonaceous material in small amounts is good for the brick earth.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: It is a harmful ingredient that causes different colours in interior and exterior of brick. Their presence defaces the plastering by discolouration.

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11. How many types of the brick earth are there?

- a) 3
- b) 5
- c) 2
- d) 6

[View Answer](#)

Answer: a

Explanation: The three types are loamy, mild or sandy clay; marls, chalky or calcareous clay and plastic, strong or pure clay.

12. Loamy, mild or sandy clay has _____ percentage of alkali?

- a) 5%
- b) 1%

c) 4%

d) 0%

[View Answer](#)

Answer: d

Explanation: It does not contain any alkali contents. It contains 5% of organics matter, 1% of lime, magnesia and oxides of iron, 66% of silica and 27% of alumina.

[Manufacture of Brick](#)

1. Which one of the below is the first step in the preparation of brick earth process?

a) Digging

b) Site selection

c) Cleaning

d) Unsoiling

[View Answer](#)

Answer: d

Explanation: Site selection is the step in the manufacturing of brick process. The first step, in order for preparation for brick earth is unsoiling. It involves scraping off top layer, about 150-250mm deep.

2. Why is the process of weathering performed?

a) To remove organic matter

b) To prepare for next process

c) To improve plasticity

d) To dry clay

[View Answer](#)

Answer: c

Explanation: Weathering is a process of softening dug out clay by adding little water and then exposing it to the atmosphere. Then it is heated and left for few weeks to undergo weathering.

3. The process of kneading brick earth is called:

a) Pugging

b) Blending

c) Ramming

d) Tamping

[View Answer](#)

Answer: a

Explanation: Pugging or tempering is done by adding water to brick earth and kneading until a homogenous mass and required plasticity is attained.

4. Which one of the following is not a part of pug mill?

a) Vertical shaft

b) Hub

c) Cutting blades

d) Timber base

[View Answer](#)

Answer: b

Explanation: Hub is a part of Kaplan turbine. Pug mill is where pugging is carried out. It consists of a conical iron tub, cutting blades, vertical shaft, horizontal arm, long wooden arm and timber base.

5. How many methods of moulding brick earth are there?

a) 3

b) 5

c) 2

d) 4

[View Answer](#)

Answer: c

Explanation: There are two methods of carrying out moulding of brick earth. These are hand moulding and machine moulding.

6. The meaning of slop moulded bricks is:

a) Sand sprinkled inside mould

b) Insufficiently moulded bricks

c) Brittle and slimy bricks

d) Mould dipped in water

[View Answer](#)

Answer: d

Explanation: To avoid clay from sticking on the mould, either sand is sprinkled (sand moulded bricks) or mould is dipped in water (slop moulded bricks).

7. Plastic clay method of machine moulding results in pressed bricks.

a) True

b) False

[View Answer](#)

Answer: b

Explanation: In plastic clay method, clay in the plastic state is employed. It comes out of a rectangular opening in the form of a clay bar. As it comes out, it is cut into strips by wire, and hence called wire bricks. Pressed bricks are obtained from dry clay method.

8. Which is the most commonly employed drying method in India?

a) Hot floor drier

b) Tunnel drier

c) Natural drying

d) Blow drying

[View Answer](#)

Answer: c

Explanation: Natural drying employs workers and it is more economical in India than using artificial driers. Hot floor drier and tunnel drier are types of artificial drying method.

9. Which of the following is not a chemical change that takes place in the brick earth during burning?

- a) Dehydration
- b) Vitrification
- c) Oxidation
- d) Reduction

[View Answer](#)

Answer: d

Explanation: During burning, no reduction reaction takes place. Dehydration expels most of the water. Oxidation results in the elimination of carbon and sulphur as oxides. Vitrification is extreme reaction and occurs when heating above 900°C.

10. The depression provided in the face of a brick during its manufacturing is called:

- a) Frog
- b) Furrow
- c) Groove
- d) Scallop

[View Answer](#)

Answer: a

Explanation: Frog is the depression provided in the face of the brick. It forms a key of mortar, reduces the weight of the brick, provides the place for companies to put their trade mark.

[Qualities of Good Brick](#)

1. What is the recommended size of a brick?

- a) 20x10x10cm
- b) 20x9x9cm
- c) 19x9x9cm
- d) 19x8x8cm

[View Answer](#)

Answer: c

Explanation: Bureau of Indian Standards recommends the size of a standard brick to be 19x9x9cm. 20x10x10cm is the size of the brick including mortar.

2. A good brick should not absorb more than what percent of water when soaked?

- a) 15%
- b) 20%
- c) 30%
- d) 10%

[View Answer](#)

Answer: a

Explanation: As per IS codes when a brick is soaked in water for 24 hours, it should not absorb more than 15% of its dry weight.

3. Which of the following bricks is not preferred?

- a) Sharp-edged
- b) Clamp burned
- c) Sound-proofed
- d) Kiln burned

[View Answer](#)

Answer: b

Explanation: In clamp burning, bricks are not burnt uniformly. This results in a non-uniform surface, colour of bricks, which cannot be used for high end works.

4. Which of the below is used to sound proof bricks?

- a) Gypsum
- b) Terracotta
- c) Plastics
- d) Ceramic

[View Answer](#)

Answer: b

Explanation: Terracotta is an acoustic material. It will absorb the sound waves and render the brick sound proof.

5. The compressive strength of the brick should be:

- a) Minimum 3.5 kN/m^2
- b) Maximum 3.5 kN/m^2
- c) Minimum 3.5 N/mm^2
- d) Maximum 3.5 N/mm^2

[View Answer](#)

Answer: c

Explanation: As per IS codes, number of bricks are tested in CTM and average is taken. It should be a minimum of 3.5 N/mm^2 .

6. A good brick when dropped from the height of 1 metre can:

- a) Shatter
- b) Not break
- c) Break into 2 halves
- d) Develop small cracks

[View Answer](#)

Answer: b

Explanation: A good brick should be able to withstand rough handling and transporting. If it breaks into pieces, then it cannot be trusted for use for high strength requirements.

7. What should be observed when a brick is broken?

- a) Parallel strata
- b) Homogeneous surface
- c) Pores
- d) Brown colour

[View Answer](#)

Answer: b

Explanation: Brick should have uniform red coloured and homogeneous strata. It should not have any visible pores.

8. Which of the following ranges of dimensions of a good quality brick is correct?

- a) Length: 368-392cm
- b) Width: 180-210cm
- c) Height: 180-210cm
- d) Weight: 25-30N

[View Answer](#)

Answer: a

Explanation: The width and height of brick should be in the range of 174-186cm. The weight of 1m^3 of brick earth is 18kN. Hence, the average weight of brick should be in the range 30-35N.

[Types of Bricks](#)

1. Unburnt bricks are also called:

- a) Dry bricks
- b) Clayey bricks
- c) Kucha bricks
- d) Clamp bricks

[View Answer](#)

Answer: c

Explanation: Unburnt bricks are the one dried in the sun, after moulding. They are kept for a long time until they dry. Sometimes due to a large number of bricks, limited time, improper workman skills, the bricks are not completely dried and hence are called Kucha bricks.

2. Burnt bricks can be further classified into how many types?

- a) 2
- b) 4
- c) 3
- d) 5

[View Answer](#)

Answer: b

Explanation: There can be 4 sub-divisions of burnt bricks. They are first class, second class, third class and kiln rejected bricks.

3. First class bricks are used for:

- a) Brick ballast in R.C.C
- b) Boundary walls
- c) Low height walls
- d) Pavements

[View Answer](#)

Answer: d

Explanation: First class bricks are strong, durable and have a good appearance. These are used for important work, load bearing works. Pavements, flooring, load bearing wall are some places of use.

4. The minimum crushing strength of third class brick is:

- a) 3.5 N/mm²
- b) 7 N/mm²
- c) 10 N/mm²
- d) 20 N/mm²

[View Answer](#)

Answer: a

Explanation: As per IS codes, the minimum crushing strength of first class brick is 10.5 N/mm², second class is 7 N/mm² and third class is 3.5 N/mm².

5. Which of the following is not a feature of second class bricks?

- a) Have small irregularities
- b) Water absorption is between 20-25%
- c) Rectangular in shape
- d) Free from cracks

[View Answer](#)

Answer: b

Explanation: The water absorption of second class bricks is less than 22%. 20-25% is the range of water absorption of third class bricks.

6. Pilas are under burnt bricks.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Pilas are under burnt or half burnt bricks with yellow colour. They can be used as surkhi. Zhamas are over burnt bricks and are kiln waste. Picked Zhamas can be used in road work.

7. What is the speciality of FALG bricks?

- a) Are composed of agricultural waste
- b) Round in shape
- c) Economic alternative to clay bricks

d) Widely used in masonry work

[View Answer](#)

Answer: c

Explanation: FALG bricks are composed of flyash, lime and gypsum. It utilises the waste from thermal power plants and hence it is an economic alternative to clay bricks.

8. Which of the following bricks types use the least amount of clay?

- a) Hollow bricks
- b) Coping bricks
- c) Channel bricks
- d) Perforated bricks

[View Answer](#)

Answer: d

Explanation: Perforated bricks contain cylindrical holes throughout their thickness. These are light in weight. They use a very little amount of clay.

9. Which of the following type of bricks is made for jambs of doors and windows?

- a) Cant bricks
- b) Arch bricks
- c) Lintel bricks
- d) Hinged bricks

[View Answer](#)

Answer: a

Explanation: Purpose-made bricks are those made to achieve a specific purpose. They can be splay or Cant, Arch, Ornamental, etc. They are costly but help in quick construction.

10. Fire clay bricks are made by burning them at high temperatures in a closed chamber.

- a) True
- b) False

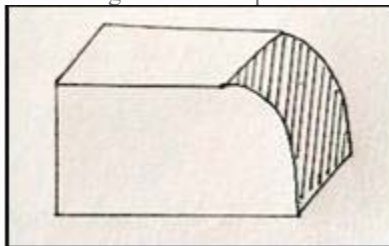
[View Answer](#)

Answer: b

Explanation: Fire clay bricks are manufactured by using fire clay. It is extracted by mining at great depths. It is capable of withstanding high temperatures of 1775°C .

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11. The figure below represents:



- a) Cownose brick

- b) Paving brick
- c) Curved sector brick
- d) Bullnose brick

[View Answer](#)

Answer: d

Explanation: Bullnose brick is a brick moulded with rounded angle. It is used for a rounded quoin (connection formed when wall takes a turn).

12. What is the problem with using flyash bricks?

- a) Efflorescence
- b) Costly
- c) Expand
- d) Not sound proof

[View Answer](#)

Answer: c

Explanation: When they come in contact with moisture, chemical reaction occurs and they tend to expand.

[Tests on Bricks](#)

1. In absorption test on brick, how many hours it has to be soaked in cold water?

- a) 19 hours
- b) 5 hours
- c) 6 hours
- d) 24 hours

[View Answer](#)

Answer: d

Explanation: The sample brick is oven dried, cooled and then soaked in water at room temperature for 24 hours.

2. What is the loading rate used in compressive strength test?

- a) 14 N/mm² per hour
- b) 14 N/mm² per minute
- c) 20 N/mm² per minute
- d) 40 N/mm² per hour

[View Answer](#)

Answer: b

Explanation: As per IS codes, the loading on brick specimen in a CTM should be uniform at rate of 14 N/mm² per minute.

3. How is the hardness of brick tested?

- a) Using finger nail
- b) Using hardness apparatus
- c) Using hammer

d) Using chisel

[View Answer](#)

Answer: a

Explanation: Brick is scratched using finger nail. If there are no visible scratches made on the brick surface, it is said to be sufficiently hard.

4. What is the maximum permissible tolerance for length and width respectively?

- a) $\pm 3\text{mm}$ and $\pm 6\text{mm}$
- b) $\pm 6\text{mm}$ and $\pm 3\text{mm}$
- c) $\pm 3\text{cm}$ and $\pm 6\text{cm}$
- d) $\pm 6\text{cm}$ and $\pm 3\text{cm}$

[View Answer](#)

Answer: b

Explanation: The standard size of brick is length – 190mm and width – 90mm. When manufactured, size variations may occur by expansion or contraction while drying and burning process. Permissible tolerance is $\pm 6\text{mm}$ for length and $\pm 3\text{mm}$ for width and height.

5. What should be observed ideally when two bricks are struck together?

- a) Dull sound
- b) Sides shatter
- c) Clear ringing sound
- d) Brick breaks

[View Answer](#)

Answer: c

Explanation: It is a test for soundness of brick. A sound brick should not break. It should produce a clear ringing sound. A dull sound indicates an unsound brick.

6. End of a brick is placed in a glass dish containing water and it is tested for efflorescence after it is absorbed or evaporated.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: After first evaporation, sample is dried. Then again same procedure is repeated. It is after second evaporation, brick is tested for efflorescence.

7. When observed efflorescence is more than 10% but less than 50% of the exposed area, it is:

- a) Moderate efflorescence
- b) Serious efflorescence
- c) Heavy efflorescence
- d) Light efflorescence

[View Answer](#)

Answer: a

Explanation: For slight efflorescence, it should not cover more than 10% of the exposed surface and for heavy efflorescence, area should be more than 50%.

8. How is the structure of brick tested?

- a) Powdered and tested
- b) Immersed in water and dried.
- c) Rubbed against another brick
- d) Broken and examined

[View Answer](#)

Answer: d

Explanation: A brick is broken to expose the surface. It should be uniform, compact, free from voids.

9. Creep test is carried out in accordance with:

- a) IS 1528
- b) IS 5688
- c) IS 3495
- d) IS 4568

[View Answer](#)

Answer: a

Explanation: Creep test is done to check percent of shrinkage of refractory test piece under constant load. The specifications for this test are given in IS 1528.

10. What does M_1 indicate in the formula:

$$\% \text{ water absorption} = \frac{M_2 - M_1}{M_2} \times 100$$

- a) Oven dried mass of brick
- b) Oven dried and cooled mass of brick
- c) Mass of water absorbed brick
- d) Mass of water absorbed and dried brick

[View Answer](#)

Answer: b

Explanation: Oven dried samples is allowed to cool down and its mass is taken as M_1 . Sample is immersed in water for 24 hours, excess water is wiped off and then its mass is taken as M_2 .

[Types of Tiles](#)

1. Quarry tile is also called:

- a) Granite tile
- b) Unglazed ceramic tile
- c) Stone tile
- d) Workshop tiles

[View Answer](#)

Answer: b

Explanation: Ceramic tile can be glazed or unglazed. Quarry tile is another name for unglazed ceramic tile. It is durable, cheap and natural.

2. Which tile is the most versatile?

- a) Porcelain
- b) Shale
- c) Slate
- d) Granite

[View Answer](#)

Answer: c

Explanation: Slate can be used as roofing shingles, it can be used indoors as well as outdoors, because of its natural looks and range of colours.

3. _____ is used for skirting around bathtubs and mosaics?

- a) Sandstone
- b) Travertine
- c) Granite
- d) Onyx

[View Answer](#)

Answer: d

Explanation: Onyx has a creamy, pearl like look. It is not commonly used for flooring but can be employed for skirting around bathtubs and mosaics.

4. Drain tiles are suitable for laying in waterlogged areas because:

- a) Porous nature
- b) Waterproof
- c) Economic
- d) Easy installation

[View Answer](#)

Answer: a

Explanation: These are prepared in such a way that even after burning, they are able to retain their porous nature.

5. Which type of tile is suitable for air-conditioned rooms, gymnasiums and skating rinks?

- a) Wood tiles
- b) Cork tiles
- c) Ceramic tiles
- d) Concrete tiles

[View Answer](#)

Answer: a

Explanation: Wooden tiles are widely used in such places. They are given a protective coating of varnish. They provide thermal comfort and are durable.

6. How many layers is the encaustic tile made up of?

- a) 2
- b) 4
- c) 3
- d) 1

[View Answer](#)

Answer: c

Explanation: The body is made of coarser clay, face of finer clay and colouring material and back of thin coat of clay to prevent warping.

7. The lower tile in Allahabad tiles is:

- a) Round
- b) Flat
- c) Rectangular
- d) Curved

[View Answer](#)

Answer: b

Explanation: Allahabad tiles consist of 2 sets of tiles. Upper one is half round in section and the lower one is flat.

8. How many Mangalore tiles are required to cover 1 square metre of roof?

- a) 20
- b) 18
- c) 10
- d) 16

[View Answer](#)

Answer: d

Explanation: The size of conventional Mangalore tile is either of the following:- 410x235mm or 420x250mm or 425x260mm. Approximately 16 tiles can be used in one meter square of a roof.

9. Which IS code gives classifications of ceramic tile?

- a) IS 13712
- b) IS 13630
- c) IS 2248
- d) IS 654

[View Answer](#)

Answer: a

Explanation: IS 13712 gives details regarding definitions, classifications, characteristics and marking of ceramic tile.

10. Pan tiles are semi-circular in section.

- a) True

b) False

[View Answer](#)

Answer: b

Explanation: Pan tiles are curved in section. Pot tiles are semi-circular in section and taper along the length.

[Manufacture of Tiles](#)

1. How many operations are involved in the manufacturing of tiles?

a) 5

b) 6

c) 10

d) 8

[View Answer](#)

Answer: b

Explanation: The main 6 operations are a selection of suitable clay, preparation of clay, moulding, drying and shaping, burning and cooling.

2. What type of clay is selected for tile manufacture?

a) Slightly wet

b) Sticky

c) Dry

d) Rich

[View Answer](#)

Answer: a

Explanation: Clay is cleaned and mixed with other additives. It is stirred in water and allowed to settle. Then slightly wet form is taken.

3. Secondary crushing of small lumps of clay to particles is carried out in:

a) Jaw crusher

b) Ball mill

c) Muller mill

d) Gyratory crusher

[View Answer](#)

Answer: c

Explanation: Primary crushing of clay to small lumps is carried out in jaw crusher or gyratory crusher. A third particle reduction is carried out using ball mill.

4. At what point is a glaze applied to a tile?

a) Finished tile

b) Drying

c) Placing

d) Firing

[View Answer](#)

Answer: d

Explanation: Glaze is a glass material designed to melt on to the surface during the firing process. It then adheres to tile while cooling.

5. Which of the following is matched properly?

- a) Ribbon mixer-helical vanes
- b) Shell mixer-revolving plows
- c) Intensive mixer-two cylinders joined into a V
- d) Pack mixer-uses water

[View Answer](#)

Answer: a

Explanation: These are used for mixing the batched raw material. Shell mixer is the one that consists of 2 cylinders joined into a V. Intensive mixer uses rapidly revolving plows.

6. What is the meaning of slip?

- a) Dry mixture
- b) Impurities in mixture
- c) Water filled mixture
- d) Different sized mixture

[View Answer](#)

Answer: c

Explanation: For fine grinding, water is added to the ball mill, where clay particles are obtained as wet mixture. It is called wet milling. Then it is followed by dry milling.

7. How is water content in the slip or slurry removed?

- a) Filter pressing
- b) Spray drying
- c) Sun drying
- d) Vacuum pressing

[View Answer](#)

Answer: a

Explanation: If wet milling is carried out, excess water is removed by spray drying. If dry milling is carried out after wet milling, filter pressing is used. It removes 40-50% of moisture.

8. Which method of forming is used for heavily profiled tiles?

- a) Dry pressing
- b) Ram pressing
- c) Pressure glazing
- d) Extrusion

[View Answer](#)

Answer: b

Explanation: In Ram pressing, extruded slugs are pressed between 2 halves of hard mould mounted in a hydraulic press.

9. Which of the following is not a method of drying?

- a) Impulse drying
- b) Infrared drying
- c) Kiln drying
- d) Tunnel driers

[View Answer](#)

Answer: c

Explanation: Impulse drying uses pulses of hot air flowing in the transverse direction. Tunnel driers use gas, oil, infrared lamps or microwave energy. Infrared drying is used for thin tiles.

10. In waterfall method of glazing, glaze is fed through rotating disc that flings glaze onto tile.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: The above described method is employed in a centrifugal or discing method. In the waterfall or bell method, a stream of glaze falls onto tiles, moving below on a conveyor belt.
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11. Which step removes volatiles from the material during firing?

- a) Glost firing
- b) Single firing
- c) Fly firing
- d) Bisque firing

[View Answer](#)

Answer: d

Explanation: Tile prepared by dry grinding requires 2 step process. In the first step, tile passes through low temperature firing, called bisque firing.

12. Fluorine emission is a pollutant generated during the manufacturing process.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Pollutants released are lead, fluorine, waste water, etc. Fluorine emission can be controlled by using scrubbers.

[Classification of Timber](#)

1. Trees are generally classified, based on the mode of growth into:

- a) 2
- b) 6
- c) 4

d) 3

[View Answer](#)

Answer: a

Explanation: The two types are endogenous (inward growth) and exogenous (outward growth).

2. What is the life time of a moderately durable timber?

a) 10-20 years

b) 1-5 years

c) 10-15 years

d) 5-10 years

[View Answer](#)

Answer: d

Explanation: The life time of high durability timber is more than 10 years, for moderately it is between 5-10 years and for low, it is less than 5 years.

3. Which of the following is an example of soft wood?

a) Sal

b) Oak

c) Deodar

d) Mahogany

[View Answer](#)

Answer: c

Explanation: Sal, Oak and Mahogany are all examples of hard wood.

4. Which IS Code gives a classification of commercial timbers and their zonal distribution?

a) IS 620

b) IS 399

c) IS 401

d) IS 190

[View Answer](#)

Answer: b

Explanation: IS 620 gives details about wooden tools handles. IS 401 specifies about the preservation of timber and IS 190 about coniferous sawn timber.

5. IS 3629-1966 classifies timber into 3 classes based on:

a) Availability

b) Average life

c) Durability

d) Density

[View Answer](#)

Answer: b

Explanation: There are 3 classes-class I, class II and class III. Class I timber has an average life of 120 months or more, Class II of 60 months or over, but less than 120 months. Class III has an average life of less than 60 months.

6. Which of the following is a type of non-refractory timber?

- a) Semul
- b) Teak
- c) Sheesham
- d) Sal

[View Answer](#)

Answer: a

Explanation: Bases on seasoning, timber has been classified into non-refractory, moderately refractory and eminent refractory timber. Teak and Sheesham are examples of moderately refractory and Sal of eminent refractory timber.

7. Which of the below type of timber has Young's Modulus greater than 9800 N/mm², but less than 12600 N/mm²?

- a) Average timber
- b) Very good timber
- c) Good timber
- d) Light timber

[View Answer](#)

Answer: c

Explanation: Average timber has Young's Modulus (E) varying between 6600 N/mm² and 9800 N/mm². Very good timber has E greater than 12600 N/mm². There is no classification as light timber based on E.

8. What is the density of a light timber?

- a) 5.5 kN/m³
- b) Less than 2.5 kN/m³
- c) 2.5 kN/m³
- d) Less than 5.5 kN/m³

[View Answer](#)

Answer: d

Explanation: Density of light to very light timber is less than 5.5 kN/m³. Moderate timber has density between 5.5 and 7.5 kN/m³ and heavy to very heavy timber has density greater than 7.5 kN/m³.

9. Hard wood is strong in tension and weak in compression.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Soft wood is strong in tension and weak in compression. Hard wood is equally strong in tension and compression.

10. Exogenous trees are further divided into:

- a) 3

- b) 4
- c) 2
- d) 5

View Answer

Answer: c

Explanation: Exogenous trees are those in which trees grow outward. The 2 types are coniferous (evergreens) and deciduous (broad leaf) trees.

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11. Which of the below is a property of soft wood?

- a) Medullary rays are less distinct
- b) Annual rings are less distinct
- c) Dark in colour
- d) Close grained structure

View Answer

Answer: a

Explanation: The other 3 options are properties of hard wood. Soft wood is light in colour, annual rings are clearly visible and it has resinous structure.

[Qualities of Timber](#)

1. The surface of freshly cut timber should be:

- a) Soft and shining
- b) Hard and shining
- c) Perfectly round
- d) Light in colour

View Answer

Answer: b

Explanation: Dull appearance is a sign of defective timber. Soft surface is prone to attack by insects, fungus and is not a good quality.

2. The quality of timber does not depend upon:

- a) Maturity of tree
- b) Time of felling
- c) Type of tree
- d) Size of tree

View Answer

Answer: d

Explanation: The size of a tree is not of much importance. The weight, maturity of tree matters and not length.

3. How should the smell of a freshly cut timber be?

- a) Sweet
- b) Pungent

- c) Unpleasant
- d) Odourless

[View Answer](#)

Answer: a

Explanation: One can detect the quality of a timber by smelling freshly cut timber. Ideally, it should be sweet. Unpleasant smell indicates decay of timber.

4. Where is the property of shock resistance an important parameter?

- a) Furniture
- b) Utensils
- c) Tool handles
- d) Doors

[View Answer](#)

Answer: c

Explanation: A good timber should be capable of resisting shocks. Tool handles, parts of motor cars, aeroplanes should use timber that has good shock resistance.

5. Timbers with _____ annular rings are generally the strongest.

- a) Narrow
- b) Wide
- c) Distinct
- d) Indistinct

[View Answer](#)

Answer: a

Explanation: Annular rings are formed every year and they consist of innumerable cells of fibres and tissues. Total number of annular rings indicate an age of tree. Narrow annular rings indicate the strength of tree.

6. How can the quality of timber be checked via sound?

- a) Timber struck by hammer
- b) Timber tapped by hand
- c) Timber knocked by chisel
- d) Two timber pieces struck together

[View Answer](#)

Answer: d

Explanation: Just as in the case of bricks, two timber pieces are taken and struck against each other. A good quality timber should make a clear ringing sound.

7. How should be the colour of good quality timber?

- a) Light
- b) Gradient
- c) Dark

d) Brown

[View Answer](#)

Answer: c

Explanation: Heart wood consists of dead cells which are free from sap, hard, dark in colour. Hence, dark coloured wood is preferred. Light colour indicates low strength.

8. Timber should be light weight.

a) True

b) False

[View Answer](#)

Answer: b

Explanation: Heavy and dense timber is the one used for all purposes. Light weight wood results in weak, unsound structure.

9. Which of the below is true about good timber?

a) Elastic

b) Round fibres

c) Less cost

d) Less density

[View Answer](#)

Answer: a

Explanation: Timber should be elastic i.e., it should retain shape when load causing deformation is removed. A good timber should have straight, compact fibres, moderate cost and high density.

10. The water permeability of timber is greater:

a) Along centre

b) Along Fibres

c) Along annual rings

d) Along bark

[View Answer](#)

Answer: b

Explanation: Water permeability of timber should essentially be zero. If it absorbs water, it is prone to decay. Fibres are most porous.

[Seasoning of Timber](#)

1. Seasoning of timber is the process of:

a) Burning timber

b) Adding preservatives

c) Removing water

d) Adding glaze

[View Answer](#)

Answer: c

Explanation: Tree when felled contains sap and high moisture content. To use it for engineering purpose, it has to be dried. The process of drying timber to remove water is called seasoning.

2. Which of the below changes do not occur after seasoning?

- a) Increase durability
- b) Decrease stiffness
- c) Workable timber
- d) Reduction in weight

[View Answer](#)

Answer: b

Explanation: Seasoning increases the stiffness of timber. It takes away sap and moisture content and imparts stiffness to timber.

3. Kiln seasoning gives stronger timber.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Natural seasoning is the one that gives stronger timber. Kiln seasoning results in weaker, lighter timber.

4. How much time does natural seasoning takes for timber to be properly seasoned?

- a) 1-4 years
- b) 6-12 months
- c) 5-10 months
- d) 5-7 years

[View Answer](#)

Answer: a

Explanation: Natural seasoning is a very slow process, as timber is stacked and blowing natural wind seasons it. It may take anywhere from 1-4 years for obtaining properly seasoned timber.

5. Which of the below is a disadvantage of air seasoning?

- a) Power requirement
- b) Skilled supervision
- c) Elaborate equipment
- d) Uniformity of seasoning

[View Answer](#)

Answer: d

Explanation: Air or natural seasoning does not require power, skilled supervision and elaborate equipment. These are all advantage of air seasoning. It might not give uniformly seasoned timber.

6. How many methods of artificial seasoning are there?

- a) 3

b) 4

c) 5

d) 8

[View Answer](#)

Answer: c

Explanation: The 5 types are water seasoning, boiling, chemical seasoning, electrical seasoning and kiln seasoning.

7. Which method leaves the timber brittle after seasoning?

a) Water seasoning

b) Kiln seasoning

c) Electric seasoning

d) Boiling

[View Answer](#)

Answer: a

Explanation: Timber pieces are totally immersed in running water for 2-4 weeks. The sap, organic matter is carried away by water in water seasoning. It renders the timber brittle.

8. Which of the below chemicals is not used in chemical seasoning?

a) Sodium chloride

b) Urea

c) Sodium hypochlorite

d) Sodium nitrate

[View Answer](#)

Answer: c

Explanation: Chemicals used are dehydrating agents. Timber is immersed in such salt solutions and allowed to reduce water content. Sodium hypochlorite is a disinfectant.

9. Which is the most rapid and effective method of seasoning?

a) Chemical seasoning

b) Electric seasoning

c) Kiln seasoning

d) Natural seasoning

[View Answer](#)

Answer: b

Explanation: Electric seasoning involves passing high electricity through timber. Since it is a bad conductor of electricity, it gets heated up. It results in rapid seasoning and it is effective as it provides uniform seasoning.

10. In kiln seasoning, the temperature of air inside chamber and humidity is high.

a) True

b) False

[View Answer](#)

Answer: b

Explanation: Seasoning starts at low temperature and high humidity. As it proceeds, conditions are gradually altered. At the end, in the chamber, temperature is high and the humidity is low.

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11. For how long is timber boiled in water in the seasoning method of boiling?

- a) 3-4 hours
- b) 1-2 hours
- c) 5-6 hours
- d) 10-12 hours

[View Answer](#)

Answer: a

Explanation: Timber is immersed in water and allowed to boil for 3-4 hours. Then it is taken into shed and dried very slowly.

Defects and Preservation of Timber

1. Which of the below is a natural defect occurring in timber?

- a) Twist
- b) Split
- c) Shakes
- d) Bow

[View Answer](#)

Answer: c

Explanation: The other options are those defects that occur after the felling of the tree.

2. How many types of shakes are there?

- a) 3
- b) 2
- c) 6
- d) 5

[View Answer](#)

Answer: d

Explanation: The 5 types of shakes are the star, heart, cup, ring and radial shakes.

3. The figure below represents:



- a) Twisted fibre
- b) Knots
- c) Wind cracks

d) Upsets

[View Answer](#)

Answer: d

Explanation: Upsets indicates wood fibres that are injured by crushing or compression. It is due to improper felling of trees.

4. _____ defects is indicated by red/yellow tinge in wood.

- a) Froxiness
- b) Druxiness
- c) Callus
- d) Burls

[View Answer](#)

Answer: a

Explanation: Druxiness is indicated by white spots. Callus is soft tissue that covers wound of a tree. Burls are swelling on the surface of the tree.

5. A crack which separates wood fibres is called:

- a) Warp
- b) Check
- c) Collapse
- d) Split

[View Answer](#)

Answer: b

Explanation: Check is crack that does not extend from one end to another. A check that extends from one end to other is called a split.

6. Diagonal grain is a defect formed due to improper:

- a) Sawing
- b) Felling
- c) Seasoning
- d) Handling

[View Answer](#)

Answer: a

Explanation: Diagonal grain is caused due to improper sawing of timber. It is indicated by diagonal marks on straight grained surface of the timber.

7. Which of the following is not a cause of the decay of timber?

- a) Lack of ventilation
- b) Alternate dry and wet conditions
- c) Absence of moisture
- d) Moisture accompanied by heat

[View Answer](#)

Answer: c

Explanation: Presence of moisture and sap accelerate the decay of timber.

8. What causes dry rot in timber?

- a) Bacteria
- b) Beetle
- c) White ants
- d) Fungus

[View Answer](#)

Answer: d

Explanation: A fungi called Merulium Lechrymans causes the dry rot. It reduces wood to fine powdery substance. It first sets in the sap wood and advances. It makes timber brittle, cohesion is lost and finally powdered.

9. A good preservative should:

- a) Be poisonous
- b) Be unaffected by heat and moisture
- c) Have pleasant odour
- d) Have white colour

[View Answer](#)

Answer: b

Explanation: A good preservative should be poisonous to fungi, insects, etc. It should odourless and colourless.

10. Which of the below preservative, with their examples correctly match?

- a) Type 1 – DDT
- b) Type 2 – Coal
- c) Type 3 – Boric acid
- d) Type 4 – Benzene

[View Answer](#)

Answer: c

Explanation: There are only 3 types of preservative as per IS 401. Type 1 is oil type and coal, tar are examples of it. Type 2 is an organic solvent type with benzene, DDT as examples. Type 3 is water borne type and boric acid, zinc chloride are examples of it.

11. Ascue is a:

- a) Defect by insects
- b) Preservative
- c) Natural defect
- d) Type of marine borer

[View Answer](#)

Answer: b

Explanation: Ascue – copper chrome arsenic composition, is a type 3 preservative developed by Forest Research Institute. It is available in powdered form. Ascue solution is prepared by mixing 6 parts powder to 100 parts water, by weight.

12. Which method of application of preservative is suitable for moist timber?

- a) Pressure application
- b) Brushing and spraying
- c) Soaking
- d) Hot and cold tank treatment

[View Answer](#)

Answer: a

Explanation: Timber is placed in air tight cylinder, vacuum is created and maintained till air bubbles are destroyed. Preservative is then pumped into the air tight cylinder.

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13. Which of the following makes the timber look sound but might fail it without pre-warning?

- a) Marine borers
- b) Wasps
- c) White ants
- d) Beetles

[View Answer](#)

Answer: c

Explanation: Beetles make thousands of deep small holes while the white ants or termites develop tunnels inside the timber in various directions.

14. The defect indicated by curvature formed in a transverse direction is:

- a) Bow
- b) Spring
- c) Twist
- d) Cup

[View Answer](#)

Answer: d

Explanation: Bow is curvature in direction of length. Spring is curvature in its own plane. Twist occurs when timber plank has spirally distorted along its length.

[Manufacture of Timber](#)

1. The felling of the tree is usually carried out in:

- a) Winter
- b) Summer
- c) Rainy season
- d) Spring

[View Answer](#)

Answer: a

Explanation: In winter season, the productivity of tree decreases due to lack of sun light. The sap and moisture content is less. During the summer, there is 50% more sap content.

2. In large forests, trees are felled using:

- a) Hammer and chisel
- b) Chainsaw
- c) Tractor
- d) Axe

[View Answer](#)

Answer: c

Explanation: Large forest contains a huge number of trees. It will be difficult, time consuming to cut them using chisel, axe or chainsaw. So specially designed tractor with cutters and grabbers are used to fell trees.

3. The thickness of veneers varies from:

- a) 0.4-0.6 cm
- b) 0.1-0.4 cm
- c) 0.1-0.4 mm
- d) 0.4-0.6 mm

[View Answer](#)

Answer: d

Explanation: Veneers are thin sheets of wood. They are obtained by rotating timber against a sharp knife. These form starting point of the manufacturing process of plywood.

4. Which of the following is not a material that forms Particle Board?

- a) Shavings
- b) Fibres
- c) Ribbons
- d) Flakes

[View Answer](#)

Answer: b

Explanation: Fibre board is made of fibres of wood. Chips, flakes, ribbons and shavings are different sized particles of wood, used in the manufacturing of Particle Board.

5. Debarking is done so as to:

- a) Safeguard saws
- b) Improve seasoning
- c) Expose surface of wood
- d) Reduce weight

[View Answer](#)

Answer: a

Explanation: Debarking is now being adopted widely. It safeguards saws and equipment from damage that would otherwise result from stones, metals, etc. present in the bark.

6. Breaking down is the process of:

- a) Felling a tree

- b) Conversion of logs
- c) Defect in timber
- d) Reducing weight

[View Answer](#)

Answer: b

Explanation: The logs are cut into the board using circular saws and band saws. This is called conversion, and first stage of conversion is the process called breaking down. It means rough sawing.

7. How many types of rough sawing are there?

- a) 4
- b) 5
- c) 2
- d) 3

[View Answer](#)

Answer: c

Explanation: The 2 types of rough sawing are through and through sawn and quarter sawn.

8. Wood that has not been seasoned is also called:

- a) Sap wood
- b) Fresh wood
- c) Heart wood
- d) Green wood

[View Answer](#)

Answer: d

Explanation: Green wood usually indicates wood that freshly cut. If not seasoned, it is called green wood. Very rarely green wood is sold in markets.

9. Before peeling in the production of plywood, what has to be carried out?

- a) Conditioning
- b) Seasoning
- c) Debarking
- d) Sorting

[View Answer](#)

Answer: a

Explanation: Plywood is made by pressing plies of wood. To peel wood, it must be soft. Conditioning involves exposing wood to moisture by soaking in hot water or live stream.

10. Wax or paint is applied to end-grain of lumber to be air dried, in order to seal the ends.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: To ensure uniform drying of lumber, end-grains are waxed or painted. They slow down drying rate of extremities.

Market Forms and Uses of Steel

1. The carbon content of steel is:

- a) Less than 0.15%
- b) 2% – 4%
- c) 0.08%
- d) 0.002% – 2.1%

[View Answer](#)

Answer: d

Explanation: Cast iron contains 2-4% of carbon, wrought iron contains less than 0.15% of carbon and stainless steel contains maximum 0.08% carbon.

2. When carbon contents less than 0.1%, steel is called:

- a) Mild steel
- b) Medium carbon steel
- c) Dead steel
- d) Hard steel

[View Answer](#)

Answer: c

Explanation: Mild steel contains carbon up to 0.25%. Medium carbon steel has 0.25%-0.7% carbon. Hard steel has 0.7-1.5%.

3. Very low carbon steel is used for:

- a) Wires
- b) Wire nails
- c) Screw drivers
- d) Rods

[View Answer](#)

Answer: b

Explanation: Since it has very low carbon contents, that is 0.05-0.1% it can be used for low strength works.

4. What property does steel impart to an R.C.C. structure?

- a) Compression and tension
- b) Tension
- c) Shear
- d) Compression

[View Answer](#)

Answer: a

Explanation: Concrete and steel are primarily used in R.C.C – reinforced cement concrete. Concrete is strong in compression and weak in tension. Steel is strong in both properties and hence provides strength to the structure.

5. Which of the below is not an ISI classified channel section?

- a) ISLC
- b) ISJC
- c) ISHC
- d) ISMC

[View Answer](#)

Answer: c

Explanation: ISLC stands for Indian Standards Light Channel. Similarly, there are Junior (J), Medium (M) and Special (S) Channels. There is no heavy (H) Channel.

6. What is the full form of TMT bars?

- a) Thermo Modified Treated
- b) Thermo Mechanically Treated
- c) Thermal Mechanic Twisted
- d) Thermo Mechanically Twisted

[View Answer](#)

Answer: b

Explanation: TMT bars are produced by sudden quenching of red hot steel bars by spraying water. Hence it is called Thermo Mechanically Treated bar.

7. Corrugated sheets are also referred to as:

- a) CS Sheets
- b) CI Sheets
- c) GC Sheets
- d) GI Sheets

[View Answer](#)

Answer: d

Explanation: The corrugated sheets are galvanized to add a protective coating to the steel sheet. Hence, GI-Galvanized Iron sheet is another name for corrugated sheets.

8. Flat iron bars are used generally for:

- a) R.C.C
- b) Grill work
- c) Roofing
- d) Truss

[View Answer](#)

Answer: b

Explanation: These are available in varying widths ranging from 10mm-400mm and thickness from 3mm-40mm. These are widely used in the construction of steel grill work for windows and gates.

9. Which of the below is not a disadvantage of using ribbed-torsteel bars?

- a) High labour charge

- b) Not easily identifiable
- c) Weaker than plain round steel
- d) Arc welding is not possible

[View Answer](#)

Answer: a

Explanation: These bars are produced from ribbed-steel which is a deformed high strength steel. These bars have projections (ribs) on their surface. The bending, fixing and handling of these bars are simplified and it results in less labour charge.

10. Steel plates are rarely used for:

- a) Connecting steel beams for extension
- b) Serving as tension members in the truss
- c) Forming built up sections of steel
- d) Providing support in R.C.C structures

[View Answer](#)

Answer: d

Explanation: Steel bars and rods are used widely in R.C.C structures. Steel plates find application in structural steel works.

[Properties and Uses of Aluminium](#)

1. Aluminium is commercially produced from:

- a) Aluminium sulphate
- b) Alum
- c) Cryolite
- d) Bauxite

[View Answer](#)

Answer: d

Explanation: Bauxite is the most commonly used ore of aluminium for production. It occurs as a weathering product of iron and silica.

2. By which of the below process is Aluminium manufactured?

- a) Bayer process
- b) Ostwald process
- c) Mayer process
- d) Haber process

[View Answer](#)

Answer: a

Explanation: In the Bayer process, alumina in bauxite is dissolved in caustic soda solution and precipitated to obtain aluminium hydroxide and calcinated to form pure Al_2O_3 .

3. Which is the most important and useful alloy of Aluminium?

- a) Magnalium

- b) Silumin
- c) Duralumin
- d) Magnox

[View Answer](#)

Answer: c

Explanation: Duralumin consists of 95% aluminium, 4% copper, 0.5% magnesium and 0.5% manganese. It is widely used in aircraft manufacturing due to its light weight and high strength.

4. Aluminium has a higher maintenance cost.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Aluminium has excellent corrosion resistance and can withstand weathering, hot and humid conditions also. Hence, maintenance cost required is less.

5. Which of the following is a property of aluminium?

- a) Hard material
- b) Brittle
- c) Noise control
- d) Magnetic

[View Answer](#)

Answer: c

Explanation: Aluminium is an excellent reflector of electromagnetic and sound waves. Therefore, it is less affected by external noise compared to other building materials.

6. Aluminium appears greyish in colour in pure form.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Pure form of Aluminium is white in colour. Its colour can vary from grey to yellow or light green depending on the presence of impurities. Yellow colour is imparted by Iron trichloride (impurity).

7. Aluminium finds its application in:

- a) Golf clubs
- b) Dehydrating agents
- c) Waste management
- d) Cricket field

[View Answer](#)

Answer: a

Explanation: Compared to steel, aluminium is lightweight. Aluminium golf heads, shafts allow golfers to swing faster and increase the ball's distance with each shot.

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8. What is the melting point of Aluminium?

- a) 250°C
- b) 658°C
- c) 700°C
- d) 470°C

[View Answer](#)

Answer: b

Explanation: The boiling point of aluminium is 2470°C. It is strong and can be widely used everywhere.

9. Recycled Aluminium is called:

- a) Primary Aluminium
- b) Green Aluminium
- c) Secondary Aluminium
- d) Subsequent Aluminium

[View Answer](#)

Answer: c

Explanation: Recycled Aluminium is called secondary aluminium and same properties of primary aluminium.

[Characteristics and Ingredients of Paint](#)

1. What is a vehicle in paint used for?

- a) To obscure surface
- b) To adhere to surface
- c) To provide shine to surface
- d) To reduce crack on surface

[View Answer](#)

Answer: b

Explanation: Paint consists of two ingredients—a base and a vehicle. Base helps to obscure the surface. A vehicle allows even spreading, binding and adhering to surface.

2. Paint should provide resistance to:

- a) Corrosion
- b) Sound
- c) Heat
- d) Warping

[View Answer](#)

Answer: a

Explanation: Paint should resist corrosion and protect the surface over which it is applied.

3. The base in a paint does not serve the function of:

- a) Durability

- b) Hard and elastic
- c) Protection against UV rays
- d) Catalyst

[View Answer](#)

Answer: d

Explanation: There are certain components called driers in the paint. They act as catalysts.

4. Which of the below is the most commonly used base?

- a) Red lead
- b) Zinc white
- c) White lead
- d) Oxide of iron

[View Answer](#)

Answer: c

Explanation: White lead possess good bulk, it is dense, permanent and water proof. It is a carbonate of lead and forms the base in lead paints.

5. Lithophone is a base widely used for exterior works.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Lithophone changes colour when exposed to day light. Hence, it is used for interior works of inferior quality.

6. How does drier act as a catalyst?

- a) Releasing oxygen
- b) Releasing water
- c) Absorbing oxygen
- d) Absorbing water

[View Answer](#)

Answer: c

Explanation: Drier accelerates the rate of drying of paint film. It absorbs oxygen from the atmosphere and transfers it to a vehicle, which in turn hardens.

7. Which of the below vehicles are used for ordinary work?

- a) Nut oil
- b) Poppy oil
- c) Stand oil
- d) Linseed oil

[View Answer](#)

Answer: a

Explanation: Nut oil is colourless and it dries rapidly. It is cheap as it is prepared from ordinary walnuts. Hence, these are used for ordinary works.

8. When should drier be added to the paint?

- a) 12 hours before paint is used
- b) Immediately after opening it
- c) 1 hour before paint is used
- d) When paint is ready to use

[View Answer](#)

Answer: d

Explanation: Driers when added to paint, will start doing their action as a catalyst immediately. This will lead to hardening of paint, decreasing workability.

9. _____ Oil is thicker and darker than raw oil, which is used as vehicle?

- a) Double boiled linseed oil
- b) Boiled linseed oil
- c) Pale boiled linseed oil
- d) Linseed oil

[View Answer](#)

Answer: b

Explanation: Raw linseed oil is thin and pale. It requires more time to dry. Boiled linseed oil is thicker and darker than raw oil and dries quickly.

10. Which of the below is a characteristic of an ideal paint?

- a) Health of the worker is unaffected
- b) Costly
- c) Pleasant smell
- d) Dries rapidly

[View Answer](#)

Answer: a

Explanation: The person applying the paint should be safeguarded from any toxic or harmful ingredients. The paint should be economic, the smell is typically bit pungent. Paint should dry at a reasonable time, not slowly or rapidly.

11. _____ base is generally used for priming coat to new wood work?

- a) Antimony white
- b) Titanium dioxide
- c) Aluminium powder
- d) Red lead

[View Answer](#)

Answer: c

Explanation: Aluminium powder forms bulk of aluminium paints. It prevents warping and cracking of wood when applied to a new wood work.

Types and Uses of Paints

1. In how many layers is oil paint applied to a surface?

- a) 3
- b) 4
- c) 2
- d) 1

View Answer

Answer: a

Explanation: Three layers of varying compositions are applied. They are primers, undercoats and finishing coats.

2. Emulsion Paints contain:

- a) Nitro cotton
- b) Zinc white
- c) White lead
- d) Polyvinyl acetate

View Answer

Answer: d

Explanation: Nitro cotton is an element contained in cellulose paints, zinc white and white lead are components of enamel paints.

3. Anticorrosive paint is _____ in colour

- a) Blue
- b) White
- c) Black
- d) Yellow

View Answer

Answer: c

Explanation: It consists of pigments like chromium oxide, lead or zinc chrome. It is mixed with sand and added to the paint. These pigments make the paint blackish in colour.

4. In which of the below, it is not necessary to remove existing paint to apply a new one?

- a) Aluminium paints
- b) Cement paints
- c) Oil paints
- d) Enamel paints

View Answer

Answer: b

Explanation: They are suitable for painting fresh plasters having high alkalinity. They can be directly applied on existing paint, hence they are economic.

5. Synthetic rubber paints are prepared from:

- a) Resin
- b) Rubber
- c) Synthetic fibres
- d) Polyvinyl Chloride

[View Answer](#)

Answer: a

Explanation: Synthetic rubber paint is prepared from resins. These are chemically resistant and offer protection against heavy rain, sunlight.

6. Cement paints require a smooth surface to be applied on.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Cement requires a rough surface for its application. It can adhere better onto rough surfaces than smoother ones.

7. What is used to make paints odourless to an extent?

- a) Flat latex
- b) Celluloid sheets
- c) Acrylic compound
- d) Plioway resins

[View Answer](#)

Answer: d

Explanation: These eliminate the odour present in alkyd, stain blocking primers. It also aims to reduce VOC content (volatile organic compound), which is harmful.

8. Spray painting is used to:

- a) Apply paint without touching surface
- b) Apply large amount of paint
- c) Reach high areas
- d) Get textured paint

[View Answer](#)

Answer: a

Explanation: Spray painting delivers a small amount of paint and gives the surface a smooth finish. Rollers are used to reach high areas.

9. The open-time of paint can be extended by adding white spirit.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Open-time is the time interval, after the application of liquid paint, during which other paint can be applied to give artistic effect. White spirit, Dowanol can be used. These allow different layers of wet paints to mix together and give a textured appearance.

10. Which of the below has a sheen and is highly washable?

- a) Acrylic flat
- b) Acrylic eggshell
- c) Acrylic satin
- d) Acrylic gloss

[View Answer](#)

Answer: c

Explanation: It has a satin finish. Compared to other types, it is more durable and washable.

Varnish

1. How many ingredients are varnish composed of?

- a) 2
- b) 3
- c) 4
- d) 5

[View Answer](#)

Answer: b

Explanation: The three components of varnish are resins, driers and solvents.

2. Which of the below is not an artificial resin?

- a) Vinyl
- b) Alkyl
- c) Phenolic
- d) Shellac

[View Answer](#)

Answer: d

Explanation: Shellac is a natural resin obtained from the secretion of the female lac bug. All other options are artificially obtained.

3. Driers in varnish are used as:

- a) Reducers
- b) Retarders
- c) Accelerators
- d) Oxidisers

[View Answer](#)

Answer: c

Explanation: Drier is the ingredient in varnish which accelerators the process of drying of applied varnish.

4. Wood naphtha, a cheap variety of resin, is also called:

- a) Methyl alcohol
- b) Synthetic rubber
- c) Acetylene
- d) Ethanol

[View Answer](#)

Answer: a

Explanation: Methyl alcohol was produced chiefly as a by-product of the destructive distillation of wood. Hence, the name wood naphtha.

5. The word varnish is derived from the word:

- a) Latin varne
- b) Latin Vernix
- c) Greek Vernix
- d) Green varne

[View Answer](#)

Answer: b

Explanation: Varnish comes from Latin word vernix, which means odorous resin.

6. Which of the below is an oil based varnish?

- a) Urethane
- b) Acrylic
- c) Polyurethane
- d) Urea

[View Answer](#)

Answer: c

Explanation: Urethane and Acrylic are water based resins.

7. Which of the below is most commonly used resin in commercial varnishes?

- a) Alkyd
- b) Phenolic
- c) Polyurethane
- d) Satin Gloss

[View Answer](#)

Answer: a

Explanation: Alkyd resin is less expensive. It is a type of polyester resin and its combined with alcohol and acid. It is cooked with oil to create varnish.

8. _____ Varnish is also called French varnish and used for furniture.

- a) Oil
- b) Water

- c) Acrylic
- d) Spirit

View Answer

Answer: d

Explanation: Spirit varnish is quick drying. It is not very resistant to weathering and is generally used for furniture.

9. Water based finishes have a blue tint to it.

- a) True
- b) False

View Answer

Answer: a

Explanation: The water based vanishes have a blue tint and when applied to wood, it looks pale, cold and washed out.

10. Solvents contain high levels of polyunsaturated fatty acids.

- a) True
- b) False

View Answer

Answer: b

Explanation: Drying oils are the ones that contain high levels of polyunsaturated fatty acids. These include linseed oil, tung oil and walnut oil.

[Fine Aggregates](#)

1. Fine Aggregates should pass through which IS sieve?

- a) 2.35mm
- b) 45 μ
- c) 4.75mm
- d) 75 μ

View Answer

Answer: c

Explanation: 4.75mm IS sieve is the aggregate size deciding sieve. Anything retained on sieve is coarse aggregate and the ones that pass through sieve are fine aggregates.

2. How many types of fine aggregates are there based on source?

- a) 3
- b) 2
- c) 4
- d) 6

View Answer

Answer: a

Explanation: Three types are natural sand (river banks), crushed stone sand (hard stone) and crushed gravel sand (gravel).

3. What is the fineness modulus value of a fine sand?

- a) <2.2
- b) 2.2-2.6
- c) <1
- d) 1-2

[View Answer](#)

Answer: b

Explanation: Based on the fineness of sand, there are very fine sand, fine sand, medium sand, coarse sand and very coarse sand. Fine sand has fineness modulus between 2.2-2.6.

4. M-Sand has _____ type of particle shape.

- a) Flaky
- b) Round
- c) Angular
- d) Cubical

[View Answer](#)

Answer: d

Explanation: The stone is crushed to obtain M-Sand. The shape of the crushed stone is cubical and it has rounded edges.

5. Which of the below can be used as fine aggregates?

- a) Lime
- b) Splinters
- c) Surkhi
- d) Rice Husk

[View Answer](#)

Answer: c

Explanation: Surkhi consists of broken brick pieces. They can be ground to the size of fine aggregates.

6. The specific gravity for sand is:

- a) 2.6
- b) 2.65
- c) 2.8
- d) 2.75

[View Answer](#)

Answer: a

Explanation: As per the results from specific gravity test in pycnometer, this specific gravity for sand is 2.6.

7. In the ratio 1:4:8, which number indicates the quantity of fine aggregates?

- a) 1
- b) 4

- c) 8
- d) None

[View Answer](#)

Answer: b

Explanation: For plain cement concrete (PCC), ratio 1:4:8 is usually used. The ratio is of cement: fine aggregates: coarse aggregates. Hence, 4 is the quantity of fine aggregates.
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8. PGBS stands for:

- a) Perfectly Graded Blast furnace Slag
- b) Pre-Grinded Blast furnace Slag
- c) Poly Granule Blast furnace Slag
- d) Processed Granulated Blast furnace Slag

[View Answer](#)

Answer: d

Explanation: It is obtained by processing the waste by-product from the iron industry. It is now being used as an alternative to river sand.

[Coarse Aggregates](#)

1. Coarse aggregates are classified into how many groups?

- a) 3
- b) 4
- c) 6
- d) 2

[View Answer](#)

Answer: d

Explanation: The two main groups of coarse aggregates are single-sized aggregates and graded aggregates.

2. How much percent of material which passes through a specific sieve is contained in that single-size aggregate?

- a) 50-60%
- b) 85-100%
- c) 70-90%
- d) 80-85%

[View Answer](#)

Answer: b

Explanation: Single-size aggregate contains mostly one sieve sized particle. 85-100% of the particular size should be there, with 0-25% of such aggregate retaining on next lower sieve.

3. Graded aggregate contains particles of size:

- a) Single grade
- b) 4.75mm
- c) Multi grade

d) <80mm

[View Answer](#)

Answer: c

Explanation: It consists of aggregates of more than one single grade. It ideally contains particles of size 4.75mm and above in a proportionate amount.

4. Flaky particles have:

a) Small thickness

b) Elongated sides

c) Sharp edges

d) Rounded edges

[View Answer](#)

Answer: a

Explanation: Flaky particles have a small thickness compared to the dimensions of other parameters that is width and length.

5. Which size coarse aggregate is ideal for use in a concrete mix?

a) Smaller

b) 4.75-10mm

c) Larger

d) 10-20mm

[View Answer](#)

Answer: c

Explanation: Using the largest size will result in a reduction of cement, water and shrinkage in the concrete mix.

6. Elongation index of coarse aggregates is calculated using:

a) $E = w_1/w_2$

b) $E = w_2/w_1$

c) $E = w_2 - w_1$

d) $E = w_2 + w_1$

[View Answer](#)

Answer: a

Explanation: Elongation index is obtained as a percentage. $E = w_1/w_2$ where w_1 is the weight of particles retained in length gauge and w_2 is the weight of test sample.

7. In crushing test on coarse aggregates, what size particle is taken as a sample?

a) Passing 12.5mm IS sieve

b) Retained on 10mm IS sieve

c) Passing 10mm and retained on 4.75mm IS sieve

d) Passing 12.5mm and retained on 10mm IS sieve

[View Answer](#)

Answer: d

Explanation: As per IS code 383, the sample should contain those aggregates which pass through 12.5mm sieve and are retained on 10mm IS sieve.

8. What is the density of undisturbed gravel?

- a) 2630-2760 kg/cum
- b) 1920-2160 kg/cum
- c) 1600 kg/cum
- d) 1200 kg/cum

[View Answer](#)

Answer: b

Explanation: 2630-2760 kg/cum is a density of granite. 1600 kg/cum is of loose gravel and 1200 kg/cum is that of brick ballast.

9. What is the symbol used for well graded gravel as per ISC system of classification?

- a) WG
- b) G
- c) GW
- d) W

[View Answer](#)

Answer: c

Explanation: Classification of coarse grained soils (ISC system) gives the symbol for well graded gravel as GW. For poorly graded, it is GP.

10. Gravel is a type of:

- a) Rounded aggregate
- b) Angular aggregate
- c) Flaky aggregate
- d) Irregular aggregate

[View Answer](#)

Answer: d

Explanation: All gravel particles have an irregular shape and sharp edge. Sand has a rounded shape. Laminated rocks have flaky shape and crushed rocks have an angular shape.

[Sieve Analysis](#)

1. The sieve sets for coarse aggregate ranges from:

- a) 40-4.75mm
- b) 20-4.75mm
- c) 80-4.75mm
- d) 100-4.75mm

[View Answer](#)

Answer: c

Explanation: According to IS 565, the sieve sets are 80mm, 40mm, 20mm, 10mm, 4.75mm for coarse aggregates.

2. The aggregate sample for the sieve analysis is placed on:

- a) Largest sieve
- b) Smallest sieve
- c) 40mm IS sieve
- d) 4.75mm IS sieve

[View Answer](#)

Answer: a

Explanation: Only if the sample is placed on largest sieve size, it can be sorted, according to each smaller sieve size below.

3. What is a receiver in a sieve analyser?

- a) Round pan on top
- b) First sieve
- c) Last sieve
- d) Round pan at base

[View Answer](#)

Answer: d

Explanation: At the base of all the sieve sets, round pan is placed to collect the particles finer than the last sieve size. It is called the receiver.

4. How is percentage retained on each sieve calculated?

- a) $w_{\text{sample}}/w_{\text{sieve}}$
- b) $w_{\text{sieve}}/w_{\text{sample}}$
- c) $w_{\text{sieve}}-w_{\text{sample}}$
- d) $w_{\text{sample}}-w_{\text{sieve}}$

[View Answer](#)

Answer: b

Explanation: The percentage retained is calculated by dividing weight of sample retained by the weight of the total sample, taken in beginning of test.

5. In how many ways can sieve analysis be carried out?

- a) 5
- b) 2
- c) 3
- d) 4

[View Answer](#)

Answer: a

Explanation: The 5 methods are throw-action, horizontal, tapping, wet and air circular jet.

6. Under what circumstance is a wet sieve analysis carried out?

- a) Sample is washed
- b) Moisture content is high in sample

- c) Sample contains organic matter
- d) Very fine powdered sample

[View Answer](#)

Answer: d

Explanation: Sometimes samples contain very fine powders which tend to agglomerate. In dry sieve analysis, it would lead to clogging of meshes and it makes analysis difficult.

7. Which of the below is a limitation of performing sieve analysis?

- a) Time consuming
- b) Costly
- c) Particle shape
- d) Particle size

[View Answer](#)

Answer: c

Explanation: The shape of particles is assumed to be nearly round or spherical so that they pass through the square opening. For elongated, flaky particles it will be difficult.

8. A narrow gradation is also called:

- a) Gap gradation
- b) Uniform gradation
- c) Rich gradation
- d) Open gradation

[View Answer](#)

Answer: b

Explanation: A graph is plotted after performing sieve analysis. It shows different curves. A narrow gradation is also called uniform gradation. It shows that the aggregate is of approximately the same size.

9. For how long is the mechanical vibrator shaken?

- a) 15-20 minutes
- b) 5 minutes
- c) 10-15 minutes
- d) 30 minutes

[View Answer](#)

Answer: a

Explanation: As per IS code 2720 Part 4. Mechanical vibrator is switched on and allowed to vibrate for 15-20 minutes. It ensures proper grading of particles.

10. For fine aggregates that is, sample passing through 4.75mm IS sieve, how much sample should be taken?

- a) 5 kg
- b) 1 kg
- c) 2 kg

d) .5 kg

[View Answer](#)

Answer: b

Explanation: IS 2720 gives the specifications. It requires using sample weighing 5 kg for coarse aggregates and 1 kg for fine aggregates.

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11. Gradation affects the properties of an aggregate.

a) True

b) False

[View Answer](#)

Answer: a

Explanation: Gradation affects properties like bulk density, physical stability and permeability. With careful selection of the gradation, desired properties can be achieved.

[Glass](#)

1. Glass is a mixture of:

a) Non-metallic silicates

b) Metallic silicates

c) Metallic acetates

d) Non-metallic acetates

[View Answer](#)

Answer: b

Explanation: Glass is a solidified super-cooled solution of various metallic silicates having infinite viscosity.

2. How many different categories of glass are there?

a) 5

b) 4

c) 2

d) 3

[View Answer](#)

Answer: d

Explanation: For the purpose of classification, glass can be grouped into 3 categories: Soda-lime glass, Potash-lime glass and Potash-lead glass.

3. Which of the following types of glass accounts for about 90% of manufactured glass?

a) Potash-lime glass

b) Soda-lime glass

c) Potash-lead glass

d) Soda-lead glass

[View Answer](#)

Answer: b

Explanation: Soda-lime glass accounts for about 90% of the manufactured glass. It is inexpensive, chemically stable, hard and workable.

4. Glass is not a single compound.

a) True

b) False

[View Answer](#)

Answer: a

Explanation: It is not a single compound and it is very difficult to give any particular chemical formula for it.

5. The two types of soda-lime glass- flat glass and container glass differ in:

a) Application and production method

b) Application and chemical composition

c) Production method and chemical composition

d) Application, production method and chemical composition

[View Answer](#)

Answer: d

Explanation: They differ in the application (flat glass is used for window panes and container glass for glass containers), production method (float process is used for windows and pressing for containers), chemical composition (flat glass has higher magnesium oxide and sodium oxide than container glass).

6. Which type of glass is used in the manufacture of artificial gems, bulbs, lenses, etc?

a) Soda-lime glass

b) Special glass

c) Potash-lead glass

d) Common glass

[View Answer](#)

Answer: c

Explanation: Potash-lead glass is a mixture of potassium silicate and lead silicate. It possesses a bright lustre and has a great refractive power, hence it is used in the manufacture of artificial gems, bulbs, lenses, etc.

7. What changes are observed when a glass is heated?

a) It becomes softer

b) It bursts

c) It solidifies

d) It disintegrates

[View Answer](#)

Answer: a

Explanation: It becomes softer and softer with a rise in temperature and is ultimately transformed into a mobile liquid.

8. How many commercial forms of glass are there for various engineering and industrial requirements?

a) 8

b) 11

c) 9

d) 10

[View Answer](#)

Answer: b

Explanation: There are 11 forms of special varieties of glass for commercial purposes. They are sheet glass, plate glass, coloured glass, wired glass, structural glass, laminated glass, bullet-proof glass, fibre glass, foam glass, flint glass and soluble glass.

9. Chromatic glass is used in:

a) ICU and meeting rooms

b) Aquariums

c) Mobile screen protectors

d) Floors

[View Answer](#)

Answer: a

Explanation: It is used in ICU, meeting rooms as it can control the transparent efficiency of glass and protects the interiors from day light.

10. The appearance of potash-lime glass in colour is:

a) Black

b) Green to colourless

c) Reddish brown

d) White

[View Answer](#)

Answer: b

Explanation: The potash-lime glass has a greenish colour as a result of high iron content in the sand used to make the glass.

[Rubber](#)

1. Natural rubber contains polymers of an organic compound:

a) Polyprene

b) Neoprene

c) Thiokol

d) Isoprene

[View Answer](#)

Answer: d

Explanation: Rubber primarily consists of Isoprene. It may contain certain impurities like organic compounds and water.

2. Rubber is extremely water-proof.

a) True

b) False

[View Answer](#)

Answer: a

Explanation: Rubber consists of mainly hydrocarbons. It also contains resins, fatty acids and sterols. These provide water proofing quality to rubber.

3. What is added to rubber to make it a thermosetting polymer?

a) Potassium

b) Sulphur

c) Sodium

d) Phosphorous

[View Answer](#)

Answer: b

Explanation: The process of vulcanization makes rubber get converted into a heavily cross-linked, insoluble and infusible compound. It is done by adding sulphur and litharge (PbO).

4. Rubber latex is used for:

a) Bonding wood plys

b) Bonding rubber to walls

c) Bonding rubber to wood

d) Bonding tools

[View Answer](#)

Answer: c

Explanation: It is a solution of rubber hydrochloride. It has a sticky texture and has excellent adhesive property.

5. Rubber seed oil can be used in:

a) Paint

b) Medicine

c) Varnish

d) Fuel

[View Answer](#)

Answer: a

Explanation: It can be used as a semi-drying oil in paints. It partially hardens when exposed to air unlike other drying oils in the paint.

6. Recycled crumb rubber can be used in:

a) Plastering

b) Mortar

c) Paints

d) Concrete

[View Answer](#)

Answer: d

Explanation: Good compressive strength results were obtained when 25% of sand was replaced by rubber. It is economical and conserves sand usage.

7. What is resilience?

- a) Strength
- b) Elasticity
- c) Soundness
- d) Durability

[View Answer](#)

Answer: b

Explanation: When rubber is subjected to a load, it deforms. On removal of the load, it returns back to its original shape and size. This property is resilience.

8. Rubber bricks are generally used for:

- a) Roofing
- b) Walls
- c) Floorings
- d) Lining pizza ovens

[View Answer](#)

Answer: c

Explanation: Rubber bricks are manufactured from recycled tyres. They are resistant to water and don't become slippery when wet. They are extensively used as flooring in toilets, pavements and horse stables.

9. Hardness of rubber is measured on which scale?

- a) Rockwell scale
- b) Shore scale
- c) Mohr's scale
- d) Vicker's scale

[View Answer](#)

Answer: b

Explanation: Hardness is measured in terms of durometer on a shore scale. Shore A is used for soft to medium-hard rubber. Solid rubber has a hardness of 40 duro.

10. Rubber wood is eco-friendly and easily available.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Unlike other trees have grown solely for timber purpose, rubber tree provides latex also. After 25-30 years, its latex yields become lower and they are felled. They are replanted after that.

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11. Synthetic rubber is also called:

- a) Gum rubber
- b) Caoutchouc
- c) Buna-S
- d) Gum elastic

[View Answer](#)

Answer: c

Explanation: It is sold under different names. Some of them are neoprene, buna-s, hypalon, silastic, etc. Gum rubber, caoutchouc and gum elastic are names used for natural rubber.

[PVC](#)

1. Modifying properties of PVC is called:

- a) Reformation
- b) Recasting
- c) Compounding
- d) Curing

[View Answer](#)

Answer: c

Explanation: Properties of PVC resins can be altered by adding certain additives to it. This process is called compounding. It is thus possible to attain rigid PVC products.

2. PVC is widely used to make pipes because:

- a) Cost effective
- b) Does not react to chemicals
- c) Easily available
- d) Easy to transport

[View Answer](#)

Answer: b

Explanation: PVC is resistant to attack by kerosene oil, acid and chemicals. It is water proof too. Hence it is widely used for pipe manufacture for carrying sewage and rain water.

3. In how many forms does PVC come?

- a) 2
- b) 3
- c) 4
- d) 5

[View Answer](#)

Answer: a

Explanation: The 2 forms are rigid (RPVC) and flexible PVC. RPVC is used in the construction of pipes, bottles, cards, etc. Flexible PVC is used in cables, wires, inflatable products, etc.

4. RPVC can be made softer and more flexible using:

- a) Reducers
- b) Conditioners
- c) Oils
- d) Plasticizers

[View Answer](#)

Answer: d

Explanation: Addition of plasticizers makes RPVC softer and more flexible. Most commonly used form is phthalates.

5. What is the Limiting Oxygen Index (LOI) of PVC?

- a) 45 or more
- b) 20 or more
- c) 45 or less
- d) 20 or less

[View Answer](#)

Answer: a

Explanation: Limiting Oxygen Index is a minimum concentration of oxygen that will support combustion of a polymer. It is expressed as a percentage. PVC has good flame retardancy. Air has 20% oxygen, PVC has LOI of 45% or more.

6. Flexible PVC is used for:

- a) Pipes
- b) Partition walls
- c) Flooring
- d) Door frames

[View Answer](#)

Answer: c

Explanation: It is inexpensive, attractive and durable as a flooring material. It is possible to print 3D designs on to this and protect it using a clear wear coat. The tough surface prevents microbes from breeding and keeps the floor sterile.

7. Which of the following PVC product is not there in the market?

- a) PVC brick decor
- b) PVC door
- c) PVC cement
- d) PVC plaster

[View Answer](#)

Answer: d

Explanation: PVC brick wallpapers are available, with an adhesive at the back. PVC cement is used to attach 2 PVC pipes. PVC doors are also common. PVC plastering accessories are available, not PVC plaster.

8. What does the below PVC pipe fitting represent?



- a) Reducer
- b) Coupler
- c) End cap
- d) Saddle

[View Answer](#)

Answer: b

Explanation: Coupler has threaded or plain ends. It is a small piece used to connect 2 PVC pipes in a pipe line.

9. PVC plug is used to:

- a) Connect pipes of varying diameter
- b) Connect 2 pipe lines
- c) Seal pipes of less diameter
- d) Seal end of pipe line

[View Answer](#)

Answer: d

Explanation: PVC plug and cap are used to seal the end of a pipeline. They have a threaded end and the other end is closed.

10. How is PVC recycled commonly?

- a) Feedstock process
- b) VinyLoop process
- c) Mechanical process
- d) Chemical process

[View Answer](#)

Answer: b

Explanation: VinyLoop process is most commonly employed. It involves filtering out composite materials and grinding it down to PVC granules.
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11. Which additive in PVC pipe leads to the contamination of potable water?

- a) Lead
- b) VCM
- c) Phthalates
- d) Sulphur

[View Answer](#)

Answer: a

Explanation: Lead is added to increase stability and work ability of PVC pipes. It is found to leach into potable water from the surface of PVC pipes, hence, contaminating it.

12. Pure PVC is _____ in colour.

- a) Grey
- b) Blue
- c) White
- d) Black

[View Answer](#)

Answer: c

Explanation: Pure PVC is white in colour. It can be coloured according to colour scheme followed in various countries for electrical usage, plumbing, etc.

[Adhesives](#)

1. Which of the below adhesive is not attacked by water?

- a) Starch glue
- b) Albumin glue
- c) Vegetable glue
- d) Rubber glue

[View Answer](#)

Answer: b

Explanation: Albumin glue is better quality glue and is used for furniture. Starch glue and Vegetable glue is not water resistant.

2. The process of applying an adhesive is:

- a) Speedy
- b) Slow
- c) Costly
- d) Cumbersome

[View Answer](#)

Answer: a

Explanation: Adhesive is used to join two surfaces, forming a strong bond between them. It is easy, economic and fast to apply.

3. Nitrocellulose glue is prepared from:

- a) Pyridine
- b) Benzene
- c) Pyroxylin
- d) Resin

[View Answer](#)

Answer: c

Explanation: Pyroxylin is a nitrated cellulose. It is derived by treating cellulose with a nitric acid. It produces films which adheres to a glass surface.

4. Which of the following glues is used to join light metals?

- a) Metal glue
- b) Cycle weld
- c) Araldite glue
- d) Special glue

[View Answer](#)

Answer: c

Explanation: Special glue is used to join metals in general. Cycle weld is used to join aluminium sheet and araldite glue is used to join light metals.

5. Epoxy adhesives are used in the manufacturing of:

- a) Glass
- b) Fabric
- c) Plywood
- d) Plastic

[View Answer](#)

Answer: c

Explanation: Epoxy adhesives can cure fast and bonds concrete surfaces as well. They can be used in automobile, aircraft and plywood manufacturing.

6. Which IS code gives details about tile adhesives?

- a) IS 14458
- b) IS 15477
- c) IS 15478
- d) IS 14557

[View Answer](#)

Answer: b

Explanation: Adhesive specifications to be used when laying ceramic tiles and mosaics are given in IS 15477.

7. Which of the below glue can be made plastic again by re-heating?

- a) Thermo-setting
- b) Rubber glue
- c) Animal protein glue
- d) Thermo-plastic

[View Answer](#)

Answer: d

Explanation: Glue from synthetic resins can be either thermo-setting or thermo-plastic. The thermo-setting one is permanent in nature. Thermo-plastic glue can be reheated and made plastic again.

8. Which glue can bond a metal to wood?

- a) Contact cement
- b) Super glue
- c) PVC cement
- d) Gorilla glue

[View Answer](#)

Answer: a

Explanation: First the metal is cleaned and filed using sand paper. It is done to make it rough for the adhesive to grip onto. Then adhesive is applied to both surfaces and pressed. Super glue is used for porcelain to porcelain; PVC cement for plastic to plastic and gorilla glue for wood to wet wood.

9. Gorilla glue is made up of:

- a) Resin
- b) Epoxy
- c) Polyurethane
- d) Animal protein

[View Answer](#)

Answer: c

Explanation: It is a type of polyurethane adhesive. It is 100% water proof, easily bonds glass, wood, stone, metal, concrete, etc. It is also temperature resistant and incredibly strong.

10. The word adhesive has its origin from:

- a) Greek Adhaerere
- b) Latin Adherae
- c) Greek Adherae
- d) Latin Adhaerere

[View Answer](#)

Answer: d

Explanation: The Latin word Adhaerere means to stick on. French word adhésif and English word adhere further lead to the word adhesive.
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11. Vegetable glue is used for:

- a) Labelling
- b) Joining glass
- c) Plastic adhesion
- d) Plywood manufacture

[View Answer](#)

Answer: a

Explanation: It is prepared from starch and natural gums. It can be used for preparing paperboard articles, labelling, etc.

12. Adhesive becomes strong immediately after its application.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Adhesive takes time to completely adhere to a surface and form films for bonding. It may take anywhere from minutes to hours to attain full strength.

[Cost Effective Materials](#)

1. Soil-cement blocks help in reducing the amount of:

- a) Sand
- b) Cement
- c) Water
- d) Mortar

[View Answer](#)

Answer: b

Explanation: These are prepared by mixing pulverised soil and Portland cement in a specific amount. Water is added and it is compacted to high density. These reduce cement consumption.

2. Stone blocks help in saving materials by reducing wall thickness from:

- a) 30-20mm
- b) 20-10cm
- c) 20-10mm
- d) 30-20cm

[View Answer](#)

Answer: d

Explanation: The wall thickness of 30cm is reduced to 20cm by using stone blocks. It is manufactured in size of 30x20x15cm and weighs 18kg.

3. FRP stands for:

- a) Fibre Reinforced Polymer
- b) Fully Reinforced Polymer
- c) Fire Resistant Polymer
- d) Fibre Reconditioned Polymer

[View Answer](#)

Answer: a

Explanation: It is a laminate structure containing fibres inter-woven and embedded within a layer of light polymer matrix material. Fibres are typically composed of carbon or glass.

4. In _____ cement mortar is reinforced with wire meshes.

- a) Fibre Reinforced Cement
- b) Wire Reinforced Cement

- c) Ferro Cement
- d) Mesh Mortar

[View Answer](#)

Answer: c

Explanation: It is a highly versatile form of R.C.C. Cement mortar is reinforced with layers of continuous and relatively small wire meshes. It is a cheap material.

5. Fibre Reinforced Concrete (FRC) is used in:

- a) Pavements
- b) Foundation
- c) Slab
- d) Beam

[View Answer](#)

Answer: a

Explanation: It has superior fatigue, crack and impacts resistance. Due to its high durability, it is used in roads, pavements, air fields, etc.

6. Concrete hollow bricks have the following characteristic:

- a) Less thermal insulation
- b) Costly
- c) Fast construction
- d) Decrease floor area

[View Answer](#)

Answer: c

Explanation: Standard size of hollow brick is 39x19x30cm compared to 19x9x9cm of normal red brick. It is bigger in size and helps in speedy construction.

7. _____ are widely used in rural areas for construction of walls?

- a) Red bricks
- b) Stabilised mud blocks
- c) Lime based bricks
- d) Hollow bricks

[View Answer](#)

Answer: b

Explanation: Stabilised mud blocks involves mixing cementitious admixtures like cement and lime. It gets more compressive strength and erosion resistance than regular mud bricks.

8. Lime replaces the use of cement by 50% in lime based stone masonry.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Stone masonry is done with lime based binders. These provide compressive strength sufficient for use in load bearing walls of 3-5 storey heights. They can considerably reduce the amount of cement.

9. Recycling steel reduces:

- a) Energy use by 75%
- b) Energy use by 50%
- c) Energy use by 35%
- d) Energy use by 20%

[View Answer](#)

Answer: a

Explanation: Six scrapped cars can yield a good strong steel frame. It requires less energy (75%) to produce recycled steel than normal steel. It also saves space in landfills.

10. Fluorogypsum, used in super sulphated cement or as binding agents, is a waste product of manufacture of:

- a) Fluorine
- b) Thermal power
- c) Hydrofluoric acid
- d) Phosphoric acid

[View Answer](#)

Answer: c

Explanation: Phosphogypsum is a waste product of Phosphoric acid manufacture and flyash is of thermal power plants. Fluorogypsum is purified by neutralising its acidity and then can be used for bricks, tiles, plastering, etc.

11. Which of the below roofing materials is most cost effective?

- a) Asphalt
- b) Plastic
- c) Rubber
- d) Metal

[View Answer](#)

Answer: d

Explanation: Metal roof is the most durable one that can even last 100 years. It provides heat and cold resistance and it is easily installed. Asphalt, plastic and rubber are recycled materials but don't last long. In terms of life, metal roofs are most cost effective.

[Types of Structures](#)

1. Pyramid is a type of _____ structure.

- a) Triangulated
- b) Massive
- c) Pneumatic
- d) Framed

[View Answer](#)

Answer: b

Explanation: Massive or lintelled structure is built with a large amount of materials. It can take up compression efficiently and has very few spaces.

2. Pneumatic structure contains:

- a) Metal
- b) Water
- c) Wood
- d) Compressed air

[View Answer](#)

Answer: d

Explanation: Compressed air is filled inside a pneumatic structure. It is light and can be deflated and dismantled easily. It is used in fun, activity area for kids.

3. Vault is an architectural term for:

- a) Cable
- b) Bridges
- c) Arch
- d) Dam

[View Answer](#)

Answer: c

Explanation: Vault is an arched form used to provide high ceiling spaces. There can be barrel vault or continuous vaults.

4. How many types of frame structures are there?

- a) 2
- b) 3
- c) 5
- d) 4

[View Answer](#)

Answer: a

Explanation: The 2 main types are rigid frame structure and braced frame structure. Both of these are further subdivided into two.

5. Which of the below is a disadvantage of frame structure?

- a) Ease of construction
- b) Economy
- c) Speed of construction
- d) Span length

[View Answer](#)

Answer: d

Explanation: Span length is usually restricted to 40ft when normal R.C.C. is used. Spans greater than this can cause lateral deflections.

6. In frame structure, what transfers the load to columns?

- a) Foundation
- b) Beams
- c) Slabs
- d) Roofs

[View Answer](#)

Answer: b

Explanation: The load bearing action in a framed structure is as follows- slab to a beam, beam to column, column to foundation.

7. In a truss structure, _____ bear tension.

- a) Joints
- b) Base
- c) Bottom chords
- d) Top chords

[View Answer](#)

Answer: c

Explanation: The bottom beams are called bottom chords and are capable of bearing tension. The top chords bear compression.

8. The figure below represents a:



- a) Warren truss
- b) Pratt truss
- c) King post truss
- d) Lattice truss

[View Answer](#)

Answer: a

Explanation: Warren truss consists of series of equilateral triangles, alternating up and down as shown in the figure.

9. Shell structure does not have any:

- a) Bending moment
- b) Shear stress
- c) Tensile stress
- d) Compressive stress

[View Answer](#)

Answer: a

Explanation: It is a thin structure. It resists and transfers loads within its minimal thickness. Loads applied to it are carried to ground by tensile, shear and compressive forces.

10. _____ structure is a space truss geometry inspired.

- a) Quadric
- b) Quadron
- c) Quadror
- d) Quadrangle

[View Answer](#)

Answer: c

Explanation: This structure uses 4 identical L-shaped pieces which results in a trestle structure and allows flexible and versatile design. It allows for rapid assembly. It can be used as road barriers, interior column, interior partitions, etc.

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11. Triangulated structure is used for:

- a) Wall
- b) Bridges
- c) Arch
- d) High rise buildings

[View Answer](#)

Answer: b

Explanation: Triangulated structure is also referred to as truss. It is widely used in roofing. It is also employed in bridges.

[Components of Building](#)

1. A building can be mainly divided into how many components?

- a) 2
- b) 3
- c) 6
- d) 8

[View Answer](#)

Answer: b

Explanation: The 3 components are substructure, plinth and superstructure. Anything below ground level is substructure and above it is superstructure.

2. D.P.C (Damp Proof Course) is mainly laid on:

- a) Footing
- b) Floor
- c) Foundation
- d) Plinth

[View Answer](#)

Answer: d

Explanation: Plinth is a line between sub and superstructure. If D.P.C. is laid on top of plinth level, moisture penetration to the superstructure can be avoided.

3. Floor in a building

- a) Separates levels
- b) Is laid below plinth
- c) Contains R.C.C.
- d) Has thickness of 10cm

[View Answer](#)

Answer: a

Explanation: Floor is laid above plinth level. It is used to tread on, keep furniture, household, other items. It also demarcates levels of a building. P.C.C. is done on flooring and it is usually 4cm thick.

4. Which of the below is constructed above doors, windows?

- a) Joist
- b) Purlin
- c) Lintel
- d) Arch

[View Answer](#)

Answer: c

Explanation: Windows and doors are openings in a wall. To support the overlying bricks, a structure is built on top of the opening. It is called lintel.

5. What is the level below window called?

- a) Pane level
- b) Lintel level
- c) Sill level
- d) Plinth level

[View Answer](#)

Answer: c

Explanation: The wall below window needs to support the weight of the window or opening and keep it steady. This level is called as sill level.

6. Wall is mainly of how many types?

- a) 3
- b) 2
- c) 5
- d) 6

[View Answer](#)

Answer: b

Explanation: Based on the capacity of walls to carry a load, it is of 2 types. Load bearing walls and non load bearing walls are the two categories.

7. _____ wall is used to resist lateral forces like severe wind.

- a) Knee wall
- b) Cavity wall
- c) Infill wall
- d) Shear wall

[View Answer](#)

Answer: d

Explanation: Shear wall is a long continuous structure, just like that surrounding an elevator. It has excellent strength and can withstand heavy winds, earthquakes.

8. Building finishes are not considered as components of a building.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Building finishes are also part of the building. Finishing works include plastering, whitewashing, painting, flooring, roofing and so on. These all add to the completion of a building.

9. How many types of parapets are there?

- a) 4
- b) 2
- c) 5
- d) 6

[View Answer](#)

Answer: a

Explanation: The 4 types are plain, perforated, panelled and embattled. Plain parapet is solid masonry, perforated has holes in different shapes, panel consists of panels joined together and in embattled, they are pierced.

10. Skylight is a type of window.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Skylight is provided on top of sloped roofs to admit light into rooms. It is provided parallel to the sloping surface. They can be opened when required. They perform all the functions of a window.
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11. The outer projection on the tread of a stair is:

- a) Going
- b) Outcrop
- c) Bulge

d) Nosing

[View Answer](#)

Answer: d

Explanation: A small projection is provided in the tread of a stair. Tread is the horizontal distance of one step. Nosing is the term used to describe that little projection.

[Foundations](#)

1. How many types of foundations are there based on depth?

a) 3

b) 4

c) 5

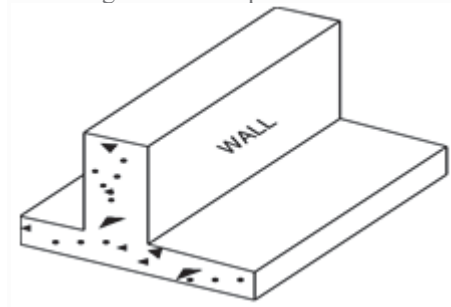
d) 2

[View Answer](#)

Answer: d

Explanation: The 2 types are shallow and deep foundations. Shallow foundation transfers the load to very near earth. Deep foundations are used for high rise buildings to bear heavy loads.

2. The figure below represents:



a) Isolated footing

b) Wall footing

c) Strap footing

d) Mat foundation

[View Answer](#)

Answer: b

Explanation: Wall footing or strip footing is a continuous strip of concrete that serves to spread weight of load bearing wall.

3. _____ footing is used in load bearing masonry construction.

a) Isolated

b) Strap

c) Strip

d) Pile

[View Answer](#)

Answer: c

Explanation: The strip footing bears a whole load of an entire wall. It is a continuous footing that runs below the wall.

4. How many types of combined footing are possible?

- a) 2
- b) 3
- c) 4
- d) 5

[View Answer](#)

Answer: a

Explanation: Combined footing is provided when 2 columns are very close by. They can be rectangular or trapezoidal in section.

5. CPRF stands for:

- a) Combined Plain Round Foundation
- b) Connected Pile Round Foundation
- c) Combined Pile Raft Foundation
- d) Corrosion Proof Raft Foundation

[View Answer](#)

Answer: c

Explanation: CPRF uses the combination of pile and raft foundation as the name suggests. It is used as a foundation for high rise buildings. It is more powerful, strong, load bearing, safe than raft or pile when used.

6. Micropiles find its main application in retaining walls.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Micropiles are used for under pinning. They are used in highways, bridges and transmission tower projects. Sheet piles are extensively used in retaining walls.

7. Steining is a component of which of the below type of foundation?

- a) Pile
- b) Strap
- c) Isolated
- d) Well

[View Answer](#)

Answer: d

Explanation: Well foundation is a type of deep foundation. It is shaped like a well. The well is dug, filled with sand/concrete. Steining is the wall provided to the well and it is built over a wedge shaped portion, called well curb.

8. Pier foundation is also called:

- a) Caisson

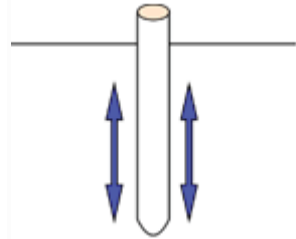
- b) Box
- c) Bridge
- d) Girder

[View Answer](#)

Answer: a

Explanation: Caisson foundation is often used in the construction of bridge piers, hence it is also called pier foundation. Caisson can be floated to the site and sunk to the required position. It is used under water also.

9. The figure below represents _____ piles.



- a) Load bearing
- b) End bearing
- c) Friction
- d) Sheet

[View Answer](#)

Answer: c

Explanation: Friction piles are usually used in construction to provide underground support to structures. They work on static friction developed between soil surface and the pile.

10. Which of the below is not a preliminary consideration for building a foundation?

- a) Bearing capacity of soil
- b) Ground water condition
- c) Settlement control
- d) Soil organisms

[View Answer](#)

Answer: d

Explanation: Bearing capacity of soil, ground water conditions and settlement control are all very important parameters to be considered while selecting the right foundation. Every soil contains organisms, foundation should be able to withstand their activities.

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11. Machine foundation is subjected to:

- a) Static loads
- b) Wind loads
- c) Static and dynamic loads
- d) Dynamic loads

[View Answer](#)

Answer: c

Explanation: Machine foundation is used in industries, workshops, where there is machinery under use. The static load includes a dead load of the machine and dynamic load (the working load). It should be able to withstand both these loads.

[Mortar](#)

1. Mortar comes from the Latin word:

- a) Mortare
- b) Mortarum
- c) Mortaer
- d) Mortarium

[View Answer](#)

Answer: d

Explanation: The word Mortarium means crushed. Mortar consists of binding material, fine aggregate and water.

2. The first used Mortar was:

- a) Lime mortar
- b) Mud mortar
- c) Cement mortar
- d) Organic mortar

[View Answer](#)

Answer: b

Explanation: In ancient times, mud was extensively used for various purposes. It was also used as mortar material. Mud was mixed with water and used.

3. Polymer Cement Mortar (PCM) is used primarily for:

- a) Repairing concrete structure
- b) Stone masonry
- c) Tile masonry
- d) Brick masonry

[View Answer](#)

Answer: a

Explanation: In PCM, a part of cement is replaced by polymer admixtures like latex, emulsion, monomers, etc. These mortars have low permeability, reduces shrinkage and is suited for repairing works.

4. MM 1.5 means:

- a) Masonry Mortar of cement content 1.5 bags
- b) Mild Mortar of cement content 1.5 bags
- c) Masonry Mortar of compressive strength 1.5N/mm^2 .
- d) Mild Mortar of compressive strength 1.5N/mm^2 .

[View Answer](#)

Answer: c

Explanation: MM stands for Masonry Mortar. The number after that represents the compressive strength of that mortar mix.

5. For pointing works, the ratio of mortar used is:

- a) 1:3 – 1:4
- b) 1:2 – 1:3
- c) 1:7 – 1:8
- d) 1:5 – 1:6

[View Answer](#)

Answer: b

Explanation: The ratio 1:2 indicates cement to fine aggregate ratio. For plastering works, 1:3 – 1:4 ratio is used. For masonry, 1:6 – 1:8 is used.

6. The guidelines for preparation for mortar is given in:

- a) IS 4455
- b) IS 2250-1981
- c) IS 3350-1981
- d) IS 5567

[View Answer](#)

Answer: b

Explanation: The method of hand mixing and machine mixing can be employed. First cement is laid on a flat platform. The required amount of sand is spread on top of it. Finally, water is added slowly till required consistency is reached.

7. Light weight mortar is prepared by using:

- a) Lime
- b) Surkhi
- c) Wood chips
- d) Flyash

[View Answer](#)

Answer: c

Explanation: Wood chips, powder or sawdust is added to lime or cement and mixed with water. This results in lightweight mortar. It is used in heat and sound proof construction.

8. Packing mortars are used to pack:

- a) Oil wells
- b) Retaining walls
- c) Bricks
- d) Cracks in masonry

[View Answer](#)

Answer: a

Explanation: It is prepared by mixing loam instead of sand. It has properties of water resistant, water pressure resistant, high homogeneity, etc.

9. The bulk density of X-ray shielding mortar is:

- a) 6-12 kN/m³
- b) 5 kN/m³ and above
- c) 22 kN/m³ and above
- d) 10-20 kN/m³

[View Answer](#)

Answer: c

Explanation: X-ray shielding mortar is prepared using heavy rocks and suitable admixtures. It's a heavy mortar with bulk density above 22 kN/m³. It is used in plastering coats to walls and ceiling of X-ray cabinets.

10. Which of the below is added to make mortar fire proof?

- a) Gypsum
- b) Asbestos cement
- c) Powdered glass
- d) Aluminous cement

[View Answer](#)

Answer: d

Explanation: This mortar is prepared by adding one part of aluminous cement to 2 parts of powder of fire bricks. It can be used to line furnaces, ovens, fire places, etc.

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11. The setting speed of mortar can be increased using:

- a) Lime
- b) Sulphur
- c) Pozzolana
- d) Gypsum

[View Answer](#)

Answer: a

Explanation: Lime (hydraulic lime) mortar sets on contact with water. It results in speedy work. It does not offer flexibility as in case of cement mortar.

12. Which of the below mortar can settle under water?

- a) Hydrolytic
- b) Pozzolana
- c) Lime
- d) Flyash

[View Answer](#)

Answer: b

Explanation: Finely powdered Pozzolana is added to lime or cement mortar can rapidly set the mortar. It can be used under water as it allows quick setting.

[Stone Masonry](#)

1. Which stone is used for buildings situated in industrial towns?

- a) Marble slab
- b) Compact sandstone
- c) Gneiss
- d) Slate

[View Answer](#)

Answer: b

Explanation: Granite and compact sandstone are generally used for buildings situated in industrial towns. Marble slab and slate are used for electrical switch boards and gneiss is used for heavy engineering works.

2. Rubble masonry is sub-divided into:

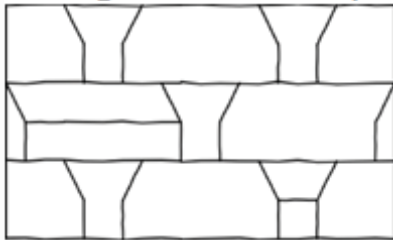
- a) 4
- b) 2
- c) 6
- d) 10

[View Answer](#)

Answer: c

Explanation: Rubble masonry uses stones of irregular size. The sub groups are coursed, uncoursed, random rubble, dry rubble, polygonal and flint rubble.

3. The figure below represents:



- a) Coursed rubble masonry I
- b) Coursed rubble masonry II
- c) Coursed rubble masonry III
- d) Coursed rubble masonry IV

[View Answer](#)

Answer: b

Explanation: In type I, stones of the same height are to be used and courses are of the same height. In type III, stones are to be of different height, course height need not be equal. In type II, as the figure indicates, stones are of different height, course is of equal height.

4. In random rubble masonry sort I, face stones are:

- a) Chisel dressed
- b) Hammer dressed
- c) Axe dressed

d) Plain dressed

[View Answer](#)

Answer: a

Explanation: In random rubble masonry sort I, face stones are chisel dressed and thickness of mortar joints does not exceed 6mm.

5. Flints used in flint rubble masonry are:

- a) Nodules of fly ash
- b) Nodules of feldspar
- c) Nodules of mica
- d) Nodules of silica

[View Answer](#)

Answer: d

Explanation: Flints are irregularly shaped nodules of silica. The width and thickness varies from 80-15cm and length from 15-30cm.

6. Which of the below joints is used for masonry in arches?

- a) Butt
- b) Table
- c) Rebated
- d) Dowel

[View Answer](#)

Answer: c

Explanation: The rebated joints involves a double L shape () of 2 stone blocks. It ensures proper grip and is used in arches, stones laid on slopes.

7. Which ratio of cement mortar is used for stone masonry?

- a) 1:6
- b) 1:3
- c) 1:8
- d) 1:4

[View Answer](#)

Answer: b

Explanation: Generally, 1:3 is the ratio used for cement mortar to be used in stone masonry. 15% of cement can be replaced by lime to improve workability.

8. Ashlar masonry uses:

- a) Dimension stones
- b) Polygonal stones
- c) Quarry dressed stones
- d) Square stones

[View Answer](#)

Answer: a

Explanation: Ashlar masonry uses dressed and faced stones. These are cut into proper dimensions and called dimension stones. It can be of any size, shape as per requirements.

9. _____ masonry occupies an intermediate position between rubble masonry and ashlar masonry.

- a) Rubble block in a course
- b) Ashlar rubble in course
- c) Ashlar block in a course
- d) Rubble ashlar in course

[View Answer](#)

Answer: c

Explanation: The stones are hammer dressed and thickness of mortar joints does not exceed 6mm. Depth of course may vary from 20-30cm. It is used for heavy engineering works.

10. Great skill and skilled labour are required for laying:

- a) Coursed rubble masonry
- b) Ashlar fine masonry
- c) Ashlar chamfered masonry
- d) Dry rubble masonry

[View Answer](#)

Answer: d

Explanation: In dry rubble masonry, mortar is not used. Great skill is required to arrange different sized and shaped stones in such a way that they don't roll down or fall down after a while.

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11. Which of the below is not to be followed for stone masonry construction?

- a) Header stones are dumb-bell shaped
- b) Properly cured for 2-3 weeks
- c) Construction to be raised uniformly
- d) Wetted stones to be used

[View Answer](#)

Answer: a

Explanation: The header and bond stones in stone masonry are not to be of dumb-bell shape. IS code 1597 gives the general guidelines to be followed by laying the stone in stone masonry.

[Brick Masonry](#)

1. How many types of brick masonry are possible?

- a) 4
- b) 2
- c) 5
- d) 6

[View Answer](#)

Answer: a

Explanation: The four types are brick work in mud, brick work in cement or lime mortar – I class, II class and III class.

2. In which bond brick is laid with its length in the direction of a wall?

- a) Header
- b) Flemish
- c) Stretcher
- d) English

[View Answer](#)

Answer: c

Explanation: Brick are laid with their end towards the face of the wall in header bond. In the Flemish bond, alternative header and stretcher are placed in each course. In the English bond, alternative header and stretcher courses are laid.

3. Which of the below should be avoided in brick masonry?

- a) Horizontal joints
- b) Queen closer
- c) Brick bat
- d) Vertical joints

[View Answer](#)

Answer: d

Explanation: Vertical joints occur when the end of a brick is in line with the end of the underlying brick, vertically. This would lead to low strength wall as cracks can easily be transferred along these joints.

4. _____ bond is better in appearance than English bond.

- a) Flemish
- b) Double Flemish
- c) Single Flemish
- d) Poly Flemish

[View Answer](#)

Answer: b

Explanation: Double Flemish bond consists of an alternative header, stretcher in each course. The facing and backing are of the same appearance.

5. Flemish bond is expensive than English bond.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Number of bricks required in Flemish bond is less than that required in English bond. It is because each course has a header and stretcher, which occupies more space than header or stretcher when placed individually.

6. In Herringbone bond, bricks are placed at _____ angle from _____ line in both directions.

- a) 60°, central
- b) 60°, vertical
- c) 45°, central
- d) 45°, vertical

[View Answer](#)

Answer: c

Explanation: There is a central line with respect to which bricks are laid. It is laid at 45° angle in both directions. It is used where wall thickness is more than 4 bricks or for paving.

7. The portion of bricks cut across the width in half is called:

- a) Half split
- b) Half closer
- c) Half bed
- d) Half bat

[View Answer](#)

Answer: d

Explanation: When a brick is halved along its height, it is a split, that along the length is a closer. Bed is the lower surface of brick when the brick is laid flat.

8. What should be placed at the beginning of every header course in English bond to avoid vertical joint?

- a) Queen closer
- b) Half bat
- c) Three fourth bat
- d) King closer

[View Answer](#)

Answer: a

Explanation: A queen closer is a brick piece cut in half along the length. It is placed so as to avoid vertical joints. It makes the header come centrally above the underlying stretcher.

9. The bricks used for corners of walls of a structure are called:

- a) Spalls
- b) Quoins
- c) Hearting
- d) Side

[View Answer](#)

Answer: b

Explanation: Spalls are chips of stones for filling interstices in stone masonry. Hearting is an interior portion of a wall between facing and backing. Side is a surface forming boundary of bricks in a direction transverse to face and bed.

10. Which bond comprises of one course of a header to three or five courses of stretchers?

- a) Dutch bond

- b) Zig-zag bond
- c) English garden-wall bond
- d) Facing bond

View Answer

Answer: c

Explanation: Dutch bond is a modified form of English bond. Three fourth bat is used next to header in stretcher course. Bricks are laid in zig-zag way in zig-zag bond. In facing bond, bricks of different thickness are used in facing and backing of walls.

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11. Which IS code gives a code of practice for brick work?

- a) IS 2212
- b) IS 3102
- c) IS 3466
- d) IS 1077

View Answer

Answer: a

Explanation: IS 3102 gives the classification of burnt clay solid bricks. IS 3466 gives the specification for masonry cement. IS 1077 gives the guidelines regarding common burnt clay building bricks.

[Composition of Concrete](#)

1. How many components are mainly used to prepare concrete?

- a) 5
- b) 3
- c) 2
- d) 4

View Answer

Answer: d

Explanation: Concrete is prepared by mixing cement, fine aggregate, coarse aggregate with water. It is a thick paste and hence has high bulk density.

2. Which of the below is the most common alternative to cement in concrete?

- a) Slag
- b) Fly ash
- c) Asphalt
- d) Lime

View Answer

Answer: c

Explanation: Asphalt is the highly cementitious material. It possesses almost all qualities of cement and is widely used as an alternative to cement.

3. What is the ideal water-cement ratio to be used while hand mixing?

- a) 0.4-0.5
- b) 0.5-0.6
- c) 0.6-1
- d) 1.6-2

[View Answer](#)

Answer: b

Explanation: Ideal water cement ratio for general works is 0.45. During machine mixing, it can be in the range of 0.4-0.5. Hand mixing is done by labourers and maximum 0.6 can be allowed.

4. Which IS code gives details regarding water to be used in concrete?

- a) IS 456
- b) IS 383
- c) IS 565
- d) IS 3012

[View Answer](#)

Answer: a

Explanation: Normally, potable water is to be used for preparing concrete. In the case where potable water is not available, a certain amount of impurities are permissible in the water to be used. Those are given in Table in IS 456.

5. How many types of chemical admixture are there?

- a) 2
- b) 3
- c) 4
- d) 5

[View Answer](#)

Answer: c

Explanation: Admixtures are compounds added to concrete to attain specific properties. The chemical admixtures are added in small amounts. The 4 types are accelerators, retarders, plasticizers and air entraining agents.

6. Retarders are used for:

- a) Construction of high rise building
- b) Repair works
- c) Cold weather conditions
- d) Grouting deep oil wells

[View Answer](#)

Answer: d

Explanation: Retarders are used to slow down the initial rate of hydration and extend the initial setting time. It is therefore used to grout deep oil wells, transport RMC (Ready Made Concrete) and avoid cold joints. Accelerator is used for first 3 options.

7. _____ is added to make white concrete.

- a) Fly ash

- b) Metakaolin
- c) Rise husk
- d) Pigments

[View Answer](#)

Answer: b

Explanation: Fly ash, Rise husk are dark in colour. Metakaolin is usually bright white in colour and is the preferred choice for architectural concrete where appearance is important.

8. As water cement ratio increases, _____ also increases.

- a) Compressive strength
- b) Tensile strength
- c) Bleeding
- d) Workability

[View Answer](#)

Answer: d

Explanation: More water improves the workability of a mix, but compromises on the strength requirements. Hence, ideal w/c ratio of 0.45 is to be used.

9. Which of the below is an example of plasticizer?

- a) Hydroxylated carboxylic acid
- b) Fluoro-silicate
- c) Gypsum
- d) Surkhi

[View Answer](#)

Answer: a

Explanation: Fluoro-silicate is an accelerator. Gypsum is a retarder and surkhi is a type of mineral admixture.

10. Which component of concrete gives it desired compressive strength?

- a) Water
- b) Cement
- c) Aggregates
- d) Admixture

[View Answer](#)

Answer: c

Explanation: Aggregates used are sand, gravel or crushed stones. These have high compressive strength. Concrete is strong in compression and weak in tension due to this reason.

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11. What is the ratio of the component in grade M20 concrete?

- a) 1:3:6
- b) 1:1.5:3
- c) 1:1:2

d) 1:2:4

[View Answer](#)

Answer: b

Explanation: Concrete is graded into many types as per IS 456-2000. M stands for mix and the number, say, 20 is a compressive strength after 28 days in N/mm². Generally, M20 grade is used. The ratio of cement: fine: coarse aggregate for M20 is 1:1.5:3. For M10 it is 1:3:6, M15 it is 1:2:4 and M25 it is 1:1:2.

[Manufacture of Concrete](#)

1. Which process comes after batching in manufacture process?

a) Transportation

b) Placing

c) Mixing

d) Compacting

[View Answer](#)

Answer: c

Explanation: Batching involves measuring the amount of raw materials required for the manufacture of concrete. The next step is to mix all these ingredients together.

2. Ready mix plant and central mix plant differ in:

a) Transportation

b) Setting time

c) Properties

d) Water addition

[View Answer](#)

Answer: d

Explanation: In ready mix plants, all the other ingredients are mixed, except water. While in central mix plants, water is also mixed along with other ingredients.

3. How many methods of batching are there?

a) 2

b) 3

c) 5

d) 6

[View Answer](#)

Answer: a

Explanation: There are 2 types of batching – weigh and volume batching. In volume batching, volumetric measure of materials is taken (1 bag cement-35 litre). In weigh batching, measurement is in terms of weight (1 bag cement-50 kg).

4. What is the maximum height through which concrete can be poured?

a) 0.1-0.6 m

b) 0.8-1 m

c) 0.5 m

d) 2 m

[View Answer](#)

Answer: b

Explanation: Concrete consists of coarse aggregates. If it is placed or poured from a height above 1 m, segregation of coarse aggregate will take place, leading to improper distribution. It affects the strength parameter.

5. How many types of machine mixers are available?

a) 2

b) 5

c) 6

d) 3

[View Answer](#)

Answer: d

Explanation: Based on the technique of discharging mixed concrete, there are 3 types of mixers available. They are tilting type, non-tilting type and pan type mixers.

6. In small works, concrete is transported using:

a) Conveyer belts

b) Pumps

c) Pans

d) Buckets

[View Answer](#)

Answer: c

Explanation: In small works, less quantity of concrete is required. So, workers carry it in a pan atop their heads. Conveyer belts and pumps are used for large construction works.

7. Compacting is done to:

a) Place concrete on flat surface

b) Remove air bubbles

c) Place concrete on sloping surface

d) Introduce air bubbles

[View Answer](#)

Answer: b

Explanation: While mixing of concrete, sometimes air gets trapped in it in the form of bubbles. These have to be removed to ensure strength parameters are met with.

8. Concrete is generally placed on a:

a) Form work

b) Stand

c) Mould

d) Platform

[View Answer](#)

Answer: a

Explanation: Form work is a mould in which concrete is poured and allowed to set. It should be properly oiled and cleaned before pouring concrete. It can be used to cast beams, slabs, columns, etc.

9. Which is the best method for curing flat surfaces?

- a) Spraying water
- b) Placing wet gunny bags
- c) Applying curing compounds
- d) Stagnating water

[View Answer](#)

Answer: d

Explanation: Curing is the process of maintaining moisture in freshly laid concrete to strengthen it. For flat surfaces like floors and slabs, ponding or stagnating water is the best method. Temporary bund can be made with mortar and filled with water to cure.

10. Excess vibration during compacting can lead to:

- a) Bleeding
- b) Segregation
- c) High strength
- d) Air bubbles

[View Answer](#)

Answer: b

Explanation: Over vibration may lead to a problem called segregation. The coarse aggregate is separated from the cement matrix. This leads to low strength.

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11. Steam curing is adopted for:

- a) Precast structures
- b) Columns
- c) Beams
- d) Walls

[View Answer](#)

Answer: a

Explanation: The precast structures are placed in enclosed chambers. Then the steam is pumped into the chamber. It accelerates the hydration of concrete and it is left for the curing period.

12. A gap of 0.3m is to maintained between cement bag and wall, while storing cement.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: The storage of cement is important. It should not be placed too close to the wall or other cement bags to avoid air circulation around bags. It may dampen the cement and make it useless.

[Properties of Concrete](#)

1. Properties of concrete can broadly be divided into:

- a) 8
- b) 6
- c) 4
- d) 2

[View Answer](#)

Answer: d

Explanation: Based on the state of concrete, its properties vary. Concrete in the fresh state has different properties than concrete in a hardened state.

2. The accumulation of water on the outer surface of the concrete is:

- a) Transpiration
- b) Bleeding
- c) Guttation
- d) Ponding

[View Answer](#)

Answer: b

Explanation: Bleeding can be good as well as bad for fresh concrete. Sometimes due to improper mixing, the water forms a thin layer on the outer surface, by oozing out through voids.

3. Which of the below property of aggregates is not desirable?

- a) Smooth texture
- b) Well graded
- c) Angular shape
- d) Smaller size

[View Answer](#)

Answer: c

Explanation: Aggregates should provide space for cement paste so as to lubricate the area. The parameters like texture, size, shape, grading are to be considered. Larger size, cubical, round and rough textured aggregates are preferred.

4. How does the strength of concrete differ with age of concrete?

- a) Increases
- b) Decreases
- c) No effect
- d) Increases, then decreases

[View Answer](#)

Answer: a

Explanation: It increases with increase in age. The strength measured after days, months and years shows an increase. It takes 28 days for concrete to attain full strength. However, it continues to attain strength even after 28 days.

5. Impermeability is a property of fresh concrete.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Fresh concrete cannot be judged as impermeable. After it hardens and forms a structure, it may be impervious or pervious. Ideally, it should be impermeable.

6. Permanent dimension changes due to loading is termed as:

- a) Strain
- b) Extent
- c) Creep
- d) Ambit

[View Answer](#)

Answer: c

Explanation: Concrete shrinks with age. The changes in dimension are called creep. It is determined using creep coefficient which is the ratio of ultimate creep strain to elastic strain at the age of loading.

7. Which admixture is used to improve workability?

- a) Plasticizers
- b) Metakaolin
- c) Reducers
- d) Accelerators

[View Answer](#)

Answer: a

Explanation: Plasticizers help to increase the workability of concrete without altering the water-cement ratio. It is very helpful as it provides the required workability, at the same time does not compromise on strength.

8. Workability reduces with time.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: The rate of evaporation of water from concrete mix increases as time increases. Loss of water leads to less workability.

9. Bleeding is good to an extent if it occurs when concrete is:

- a) Transported
- b) Mixed
- c) Plastic
- d) Placed

[View Answer](#)

Answer: c

Explanation: While the concrete is still plastic, the accumulated water due to bleeding can be used to mix concrete again and improve workability. It also benefits by further reducing water-cement ratio.

10. M15 concrete is used for:

- a) Dams
- b) Foundation
- c) R.C.C
- d) Mass concreting works

[View Answer](#)

Answer: b

Explanation: M10 is used for Mass concrete works, dams, etc. M20 is used for R.C.C. structures. M15 can be used for ground floor construction also.
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11. In design of R.C.C. structures, the tensile strength of concrete is taken as:

- a) 5N/mm^2
- b) 2N/mm^2
- c) 0.3N/mm^2
- d) 0N/mm^2

[View Answer](#)

Answer: d

Explanation: Since concrete does not take up tensile loads, it is taken as zero. But IS 456-2000 recommends the tensile strength to be calculated using $F_t = 0.7\sqrt{f_{ck}} \text{ N/mm}^2$.

12. Higher the cement content,

- a) Higher aggregates
- b) Lower workability
- c) Higher strength
- d) Lower strength

[View Answer](#)

Answer: c

Explanation: Higher the cement content i.e. lower the aggregate cement ratio, higher is the strength. It improves workability also.

[Tests on Concrete](#)

1. Modulus of elasticity, E is calculated using:

- a) $E=5000\sqrt{f_{ck}}$
- b) $E=500\sqrt{f_{ck}}$
- c) $E=50\sqrt{f_{ck}}$

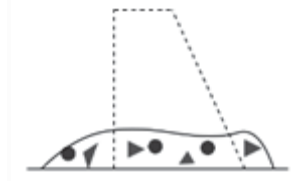
d) $E=5\sqrt{f_{ck}}$

View Answer

Answer: a

Explanation: The modulus of elasticity is found out to determine plastic or elastic nature of concrete. In the formula, f_{ck} is the characteristic strength.

2. The figure below represents a:



- a) Low slump
- b) Normal slump
- c) Shear slump
- d) Collapse slump

View Answer

Answer: d

Explanation: In slump test, fresh concrete is filled in a slump cone and it is taken off. The shape of the so formed concrete is represented in the figure above. The concrete has completely collapsed, hence the name.

3. Tensile strength is found out using:

- a) CTM
- b) Gradual tensile test
- c) Split tensile test
- d) Radial tensile test

View Answer

Answer: c

Explanation: In addition to using characteristic strength f_{ck} to determine tensile strength, split tensile test can also be used. It is performed using a UTM.

4. Flexure strength is determined as:

- a) Modulus of rigidity
- b) Modulus of rupture
- c) Modulus of plasticity
- d) Modulus of elasticity

View Answer

Answer: b

Explanation: Flexure strength of concrete is defined as the tensile strength of extreme fibre of plain concrete beam. It is determined in terms of modulus of rupture.

5. Compaction factor for a heavily reinforced section with vibration is:

- a) <0.75

b) 0.75-0.85

c) 0.85-0.92

d) >0.92

[View Answer](#)

Answer: c

Explanation: Compaction factor test is conducted to determine the compaction factor. It has different values required for different purposes. To concrete a heavily reinforced section with vibration it is 0.85-0.92.

6. The result of Vee-Bee test is expressed in terms of:

a) s

b) m

c) N/mm²

d) kg

[View Answer](#)

Answer: a

Explanation: The time is tested is Vee-Bee test. Time required to complete remoulding of concrete when subjected to the vibration is measured. It is then expressed in seconds.

7. The size of a commonly used specimen for compression test is:

a) 50×30 mm

b) 150x150x150 mm

c) 150x50x50 mm

d) 150×150 mm

[View Answer](#)

Answer: b

Explanation: The commonly used specimen to test compressive strength is a cube. It has 3 dimensions-length, width and height. These cubes are cast in moulds of size 150x150x150mm.

8. Concrete is filled in how many layers in slump cone in slump test.

a) 3

b) 2

c) 6

d) 4

[View Answer](#)

Answer: d

Explanation: The fresh concrete is filled in slump cone in 4 layers. Each layer is tamped 25 times with a 16mm pointed rod. The specifications are given in IS 1199.

9. Modulus of rupture is calculated using the formula:

a) $f=PL/bd^2$

b) $f=PL^3/3EI$

c) $f=I/6bd^2$

d) $f = Pb/Ld^2$

[View Answer](#)

Answer: a

Explanation: The modulus of rupture is found out dividing maximum moment M /section factor Z . M is given by $PL/6$ and $Z = 1/6bd^2$.

10. A slump of 50-100mm can be used for:

- a) Mass concreting
- b) Strip footing
- c) Trench fill
- d) Beams

[View Answer](#)

Answer: d

Explanation: Slump of higher value gives greater workability, but yields less strength. A slump of 25-75mm can be used for mass concreting and strip footing. A slump of 100-150mm is used for trench fill.

11. How many hoppers are there in compaction factor test?

- a) 1
- b) 4
- c) 2
- d) 3

[View Answer](#)

Answer: c

Explanation: There are 2 hoppers and 1 cylinder in the apparatus. Concrete is poured in hopper A (first one). The hinged bottom is opened, concrete falls to 2nd hopper B. Again, hinged bottom is opened, concrete is allowed to fall into cylinder C.

12. If cylinder specimen is used to test compressive strength, equivalent cubes strength can be found using:

- a) $3/4^{\text{th}}$ strength of cylinder
- b) $5/4^{\text{th}}$ strength of cylinder
- c) $5/6^{\text{th}}$ strength of cylinder
- d) $1/4^{\text{th}}$ strength of cylinder

[View Answer](#)

Answer: b

Explanation: This formula is recommended by IS codes. IS 516 gives the details.

[Doors and Windows](#)

1. The most common type of door is:

- a) Double leaf door
- b) Louvred door
- c) Single leaf door

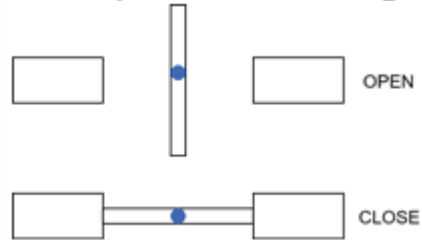
d) Battened door

[View Answer](#)

Answer: c

Explanation: Single leaf door is the one consisting of a single rigid panel of any material that fills the doorway.

2. The representative figure below shows the mechanism of a _____ door.



a) Rotating

b) Swing

c) Spinning

d) Sliding

[View Answer](#)

Answer: a

Explanation: Rotating or revolving door has several wings which are hinged at the middle. It opens in both directions and allows more number of people through it.

3. A casement window hung horizontally is called:

a) Hopper

b) Awning

c) Pivot

d) Transom

[View Answer](#)

Answer: b

Explanation: Awning window is hinged on the top and it swings outwards. These are partially useful for ventilation.

4. Light, a term used in windows, is:

a) Area between outer parts of a window

b) Glazed part of the window

c) Area between inner parts of a window

d) Opening of the window allowing light

[View Answer](#)

Answer: a

Explanation: Light or Lite is a term used to refer to the area between outer parts of the window. It is usually filled with a glass pane.

5. If a door swings towards the person opening it, it is called:

a) Left handed

- b) Reverse
- c) Normal
- d) Right handed

[View Answer](#)

6. Which of the below material of window has life span of 50 years?

- a) PVC
- b) Steel
- c) UPVC
- d) Aluminium

[View Answer](#)

Answer: c

Explanation: UPVC has very good thermal resistance and durability. The maintenance required is very low. It has an average cost and can thus stay for 50 years.

7. _____ door swings both ways.

- a) Mead
- b) Dutch
- c) Garden
- d) French

[View Answer](#)

Answer: a

Explanation: A Dutch door consists of 2 halves (top & bottom) which function individually. A French door has moulded panel at bottom of door. A garden door has only one door openable and is much secure.

8. A bay window is a multi-panel window, which:

- a) Is provided at corners
- b) Runs parallel to the wall
- c) Embeds inside wall
- d) Projects outside wall

[View Answer](#)

Answer: d

Explanation: Bay window has at least 3 panels set at different angles. This feature creates a protrusion from the wall line.

9. A roof lantern is also called:

- a) Skylight
- b) Cupola
- c) Celestory
- d) Oriel

[View Answer](#)

Answer: b

Explanation: Roof lantern is provided on a roof and it is multi-paned glass structure. It lets in a day or moon light. It is also called as cupola.

10. _____ is a decoration that looks like a door.

- a) Pseudo door
- b) Flush door
- c) False door
- d) Composite door

[View Answer](#)

Answer: c

Explanation: False door merges with the wall, making it look like a decorative piece. It is mainly found in Egyptian architecture. It was also referred to as a door to after life and built inside tombs.

11. What does 10 WT 13 mean?

- a) Size of window opening 10x13cm
- b) Size of window opening 100x130mm
- c) Size of window opening 10x13mm
- d) Size of window opening 1000x1300mm

[View Answer](#)

Answer: d

Explanation: This representation is the way to designate a window. W stands for window and T for double shutter. The letter S is used to indicate a single shutter.

12. In a ventilator, top edge of shutter opens,

- a) Outside
- b) Inside
- c) Sideways
- d) Does not open

[View Answer](#)

Answer: b

Explanation: In most of the ventilators, top edge of shutter opens inside and bottom edge opens outside. Nowadays, ventilators with 2 glass sheets are being used because of their ease and efficiency.
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13. Which of the below doors is generally used in residential and office buildings?

- a) Flush door
- b) Rotating door
- c) Louvered door
- d) Hinged door

[View Answer](#)

Answer: a

Explanation: Flush door is made with plywood and the shutters are available in various materials. These offer less moisture resistance and hence are used in the interior portion.

14. The middle horizontal member of the shutter is called:

- a) Median rail
- b) Mid rail
- c) Sill rail
- d) Lock rail

[View Answer](#)

Answer: d

Explanation: The middle portion where the provisions for a lock are generally given. Hence it is called lock rail.

15. Mullion is _____ member employed to sub divide a window or door opening vertically.

- a) Horizontal
- b) Inclined (at 45°)
- c) Vertical
- d) Inclined (at 60°)

[View Answer](#)

Answer: c

Explanation: Mullion is often provided to give aesthetic appearance. It is also provided to extend extra support to structure which has large opening.

[Roof Types](#)

1. Roof may be broadly classified into:

- a) 2
- b) 3
- c) 5
- d) 6

[View Answer](#)

Answer: b

Explanation: The three types are sloping roofs, flat roofs and shell roofs. They can be used according to the place of construction and requirements.

2. The lowest edge of the sloping surface of roof is called:

- a) Ridge
- b) Rafters
- c) Pitch
- d) Eaves

[View Answer](#)

Answer: d

Explanation: Ridge is the apex line of a sloping roof. Rafters are wooden members extending from ridge to eaves. Pitch is the inclination of the sloping roof to horizontal.

3. _____ Roof has four sloping sides with zero vertical roof lines.

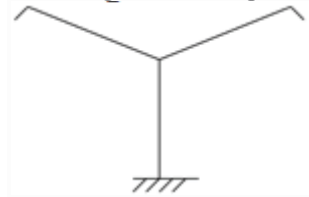
- a) Gable
- b) Gambrel
- c) Hip
- d) Shed

[View Answer](#)

Answer: c

Explanation: Hip roof is difficult to construct compared to flat and gable roof because these have complicated truss and rafter structure.

4. The figure below represents a _____ roof.



- a) Butterfly
- b) Bat
- c) Prismatic
- d) Conoid

[View Answer](#)

Answer: a

Explanation: It is type of shell roof. The two sides are shaped like wings of a butterfly, hence the name. It is not commonly used because it does not provide drainage facility.

5. Ridge piece in a sloping roof is usually a:

- a) Metal
- b) Wood
- c) Polymer
- d) PVC

[View Answer](#)

Answer: b

Explanation: Ridge piece runs horizontally at the apex. Rafters are then affixed on to this. It is usually a wooden piece or board.

6. How many types of sloping roofs are available?

- a) 2
- b) 10
- c) 5
- d) 6

[View Answer](#)

Answer: d

Explanation: There are 6 types of sloping roofs available. They are steel sloping roofs, lean-to-roofs, couple roofs, couple close roofs, collar beam roofs and trussed roofs.

7. Timber trusses can be built for long spans.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Steel trusses are mostly used for longer spans. These are easy to fabricate, install and maintain. They have higher resistance to fire, corrosion (painting) etc....

8. A finishing coat with _____ ratio is provided in Punjab terrace roofs.

- a) 1:4
- b) 1:2
- c) 4:1
- d) 2:1

[View Answer](#)

Answer: c

Explanation: The finishing coat primarily consists of cow dung and cement mixed together. They are taken in 4:1 ratio, that is 4 parts cow dung to 1 part cement.

9. Which of the below roof types can be used for a span of 4.5 m?

- a) Couple close roof
- b) Lean-to-roof
- c) Couple roof
- d) Collar beam roof

[View Answer](#)

Answer: a

Explanation: Lean-to-roof is usually employed for a span of 2.5m. Couple roof is provided where a span of 3.5m is required. Collar beam roof can be used up to the span of 4-6m.

10. A gable roof slopes in _____ direction.

- a) 1
- b) 3
- c) 2
- d) 4

[View Answer](#)

Answer: c

Explanation: A gable roof slopes in two directions in such a way that the end formed by the intersection of slopes is a sloped triangle. It is commonly used in houses, workshops, etc.

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11. How many layers of flat tiles are placed in Madras terrace roofs?

- a) 2
- b) 4
- c) 0
- d) 3

[View Answer](#)

Answer: d

Explanation: In Madras terrace roof, firstly wooden joists are placed over steel joists or walls. Then, a course of well burnt bricks is placed in the lime mortar, followed by a layer of brick bat concrete. Then 3 layers of flat tiles in the lime mortar (1:2) is provided and the roof is finished with 3 coats of plaster.

12. Which of the below is the type of folded plate roof?

- a) Prismatic
- b) Cylindrical
- c) Corrugated shell
- d) Ellipsoidal

[View Answer](#)

Answer: a

Explanation: Folded plate roofs may be defined as slabs with folds. These folds reduce bending moment and shear force considerably. Cylindrical, Corrugated shell and Ellipsoidal are types of shell roofs.

Roof Coverings

1. Thin pieces of split or sawn wood are called:

- a) Thatch
- b) Ribbon
- c) Shingles
- d) Ply

[View Answer](#)

Answer: c

Explanation: Shingles are commonly used in hilly areas and for building low cost houses. They are nailed to supporting structure to make roof covering.

2. EPDM Rubber is generally used for:

- a) 3-in-12 pitch
- b) 4-in-12 slope
- c) 2-in-12 slope
- d) Flat roofs

[View Answer](#)

Answer: d

Explanation: EPDM Rubber is ethylene propylene diene monomer. It is used to create a single-ply rubberized roof for a flat or a very low slope roof. It is UV resistant.

3. How many types of composition shingles are there?

- a) 2
- b) 3
- c) 4
- d) 5

[View Answer](#)

Answer: a

Explanation: The two types of composition shingles are organic and fibreglass. It is used to cover pitched or sloping roofs.

4. Synthetic slate is made from:

- a) Isoprene
- b) Fibre cement
- c) Plastic fibres
- d) Resin

[View Answer](#)

Answer: b

Explanation: The fibres in fibre cement are usually wood or cellulose. These cannot be used in freeze-thaw climates, as the fibres may absorb water.

5. Mission or barrel roof tiles are:

- a) Flat
- b) Semi-cylindrical
- c) Curved
- d) Semi-circular

[View Answer](#)

Answer: b

Explanation: The barrel tiles are semi-cylindrical in shape. They are laid in alternating columns of convex and concave tiles. They can be produced from clay, metal, concrete or plastic.

6. _____ coating is applied on a metal roof to improve heat – reflective properties.

- a) Paint
- b) Oil
- c) Ceramic
- d) Zinc

[View Answer](#)

Answer: c

Explanation: Paint and Zinc is applied to give a good appearance and to prevent corrosion. Oils are used to enhance appearance by bringing out the colour and lustre. It also excludes moisture from copper roofs.

7. The simplest form of wood shingle is:

- a) Split

- b) Straight
- c) Rectangular
- d) Tapered

[View Answer](#)

Answer: c

Explanation: There can be different shapes of wood shingles and shakes. They can be tapered, straight, split or sawn and any two of the above can be combined, except straight-tapered. Rectangular shingles of 14cm length is the simplest form.

8. Liquid roofing is the process of:

- a) Water proofing roofs
- b) Painting roofs
- c) Using glass for roofing
- d) Curving R.C.C. roofs

[View Answer](#)

Answer: a

Explanation: It refers to the application of a special liquid coating to any type of roofs. The coating then cures and forms a rubber like water proof membrane. It is cost effective, safe, easy to apply and highly reliable.

9. The CGI sheets produced today, have the pitch of:

- a) 1 inch
- b) 3 inches
- c) 5 inches
- d) 7 inches

[View Answer](#)

Answer: b

Explanation: Pitch is the distance between two crests in a corrugated sheet. In corrugated galvanized Iron (CGI) sheets, pitch can range from 1-5 inches. Commonly produced one these days is 3 inch one.

10. Straw thatch roof may last for 50-60 years.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Straw thatch and reed thatch are both used after dipping them in fire resistant solutions. Straw thatch is more likely to catch fire, absorb more moisture than reed thatch. Straw thatch can last for 20-25 years while reed thatch can last for 50-60 years.

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11. Which of the below ratio is used for R.C.C. roofing?

- a) 1:1:2
- b) 1.5:1:3
- c) 1:2:4

d) 1:1.5:3

[View Answer](#)

Answer: d

Explanation: The R.C.C. is used for flat roofs. The most commonly used ratio is 1:1.5:3.

[Floor Types](#)

1. Which type of floor is used for residential buildings?

a) Ground timber floor

b) Single joist timber floor

c) Double joist timber floor

d) Framed timber floor

[View Answer](#)

Answer: b

Explanation: In residential buildings, the span is less and loads to be carried are light. So, a single joist timber can be used.

2. Floor under the flooring is called:

a) Plinth

b) Sunken floor

c) Sub floor

d) Hind floor

[View Answer](#)

Answer: c

Explanation: Flooring refers to the floor finish or covering like tiles, mosaic, etc. The level below these is called sub floor.

3. A _____ floor makes noise when an intruder walks on it.

a) Glass

b) Chirping

c) Sound

d) Nightingale

[View Answer](#)

Answer: d

Explanation: These floors make a chirping sound when the tread on. The sound is produced by the rubbing of nails against the boards of flooring.

4. A floor consists of _____ parts.

a) 2

b) 3

c) 4

d) 5

[View Answer](#)

Answer: a

Explanation: A floor consists of 2 parts. A sub floor, which is laid below flooring and supports the flooring as well as super imposed loads. The floor covering is the second part, which gives a smooth, clean, impervious and durable surface.

5. _____ floor is used for spans of more than 7.5m.

- a) Framed timber
- b) Stone
- c) Glass
- d) Double joist timber

[View Answer](#)

Answer: a

Explanation: In a framed timber floor, girders are placed between walls and binders are put on them. It can be used for larger spans.

6. Distribution of loads on the wall is not uniform in single joist timber floor.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: In single joist timber floor, joists are spaced closely – 30cm centre to centre. It is because of this the distribution of loads on the wall is uniform.

7. Which of the below is a problem with floors?

- a) Cracks
- b) Stains
- c) Vibration
- d) Projections

[View Answer](#)

Answer: c

Explanation: Vibration can occur when heavy footsteps and low bass frequencies pass through the floor. Wooden floor is more prone to vibrations. A floating floor or concrete floor can be used to solve the problem.

8. Which of the below utility cannot be provided underneath a floor?

- a) Plumbing
- b) Sound proofing
- c) Air-conditioning
- d) Gas lines

[View Answer](#)

Answer: d

Explanation: Gas lines are generally drawn through walls and not floors. All other utilities like plumbing, electrical wires, thermal and sound proofing, fire protection, sewage can be carried underneath a floor.

9. The upper floors are floating floors.

- a) True

b) False

[View Answer](#)

Answer: b

Explanation: Floating floors is the one that is supported by the ground below. Suspended floor is the one supported by walls at the edges. Ground floor can be floating or suspended, while upper floor is always suspended floor.

10. In suspended concrete floors, _____ beams are used.

- a) T shaped
- b) Inverted L shaped
- c) Inverted T shaped
- d) I shaped

[View Answer](#)

Answer: c

Explanation: A suspended concrete floor is typically built using block and beam. Inverted T shaped beams are used. Concrete blocks (Pre-cast) are laid in between these beams.

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11. Horizontal structural members placed at right angles to bridging joists are:

- a) Binders
- b) Girders
- c) Screed
- d) Topping

[View Answer](#)

Answer: a

Explanation: Binders are provided to take the load of bridging joist and of floor toppings. Girders are placed to support binders. Screed is narrow strips of wood or bands of plaster laid on floor to act as guides to get an even surface for toppings. Top most layer of a floor is called toppings.

[Floor Coverings](#)

1. Cork flooring is made using:

- a) Wooden chips
- b) Cork pieces
- c) Wooden fibres
- d) Bark of Cork Oak

[View Answer](#)

Answer: d

Explanation: Cork flooring is made by removing bark of Cork Oak, without damaging the tree. It is renewable and sustainable. It also possesses anti-microbial, sound proofing, comfort properties.

2. The first step in flooring is:

- a) Topping
- b) Base coat

- c) Sand filling
- d) R.C.C. layer

[View Answer](#)

Answer: b

Explanation: Flooring refers to the covering of floor. Before laying any covering material, a base coat has to be provided. Cement concrete ratio of 1:8:16 of 100mm thick or compacted earth of ratio 1:4:8 can be used.

3. Mechanically produced carpet is a combination of:

- a) Rubber and synthetic fibres
- b) Wool and rubber
- c) Wool and synthetic fibres
- d) Rubber and natural fibres

[View Answer](#)

Answer: c

Explanation: Generally wool is used to make carpet. Mechanically produced carpets are a combination of wool and synthetic fibre. The highest grade is 80/20 of wool/nylon blend.

4. How many types of floor tiles are available?

- a) 3
- b) 2
- c) 4
- d) 6

[View Answer](#)

Answer: a

Explanation: The three main available tiles in the market are ceramic tiles, vitrified tiles and porcelain tiles.

5. The costliest and best variety of marble flooring is:

- a) Albeta
- b) Makrana white
- c) Aranga
- d) Kumari

[View Answer](#)

Answer: b

Explanation: The Makrana white marble is a native of Rajasthan. It has been used in Taj Mahal. It has a pure white colour, soft smooth texture and high-quality finishing.

6. Which of the below is not an advantage of brick flooring?

- a) Fire proof
- b) Cost effective
- c) Slip resistant
- d) Water proof

[View Answer](#)

Answer: d

Explanation: Bricks, as a material is very porous and permeable to moisture, fluids. It can absorb any liquid spilled on it, stain the surface and eventually decay. Cleaning becomes difficult. They need to be sealed periodically with water proofing chemicals.

7. Glass floors can be made with _____ type of glasses.

- a) 5
- b) 6
- c) 3
- d) 4

[View Answer](#)

Answer: c

Explanation: Transparent glass is used when objects below it are to be viewed, translucent glass is used where visibility of objects below is to be blocked. Toughened glass is usually used as it is more strong and resistant to breaking.

8. PVC flooring gives _____ finish.

- a) Matt
- b) Laminated
- c) Satin
- d) Natural

[View Answer](#)

Answer: a

Explanation: PVC rolls and tiles are available. These provide a matt finish to the floor, not a glossy, fine finish. They are not very hard, but are water resistant.

9. Terrazo flooring comprises of:

- a) Chips, powder, concrete
- b) Chips, concrete
- c) Chips, cement
- d) Chips, powder, cement

[View Answer](#)

Answer: d

Explanation: Terrazo refers to the presence of small decorative chips embedded in cement paste. The chips may be of glass, marble, etc. Along with chips, marble powder or magnesite powder is also added.

10. Cement concrete floor is laid in a ratio of:

- a) 1:8:16
- b) 1:1:2
- c) 1:2:4
- d) 1:1.5:3

[View Answer](#)

Answer: c

Explanation: Plain cement concrete flooring can also be provided. The ratio of 1:2:4 is used. It is laid over a base concrete after proper sub base preparation.

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11. Wooden flooring:

- a) Resists water
- b) Does not fade
- c) Non-elastic nature
- d) Economic

[View Answer](#)

Answer: b

Explanation: Wooden flooring is the costliest one if high quality, durable and polished wood is used. It does not resist water that efficiently unlike other materials. It is elastic in nature. It is polished and has a natural lustre, which does not fade away.

[Stairs](#)

1. The vertical portion between each tread on the stair is called:

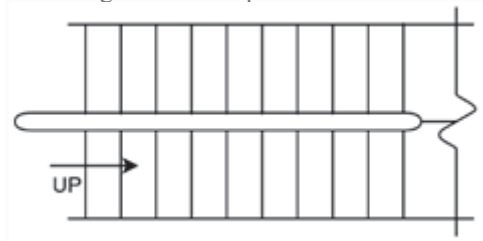
- a) Going
- b) Nosing
- c) Winder
- d) Riser

[View Answer](#)

Answer: d

Explanation: Tread is the place where we step on. It is the horizontal portion. The vertical distance between consecutive treads is called the riser. It may or may not be present (open stair effect).

2. The figure below represents a:



- a) Dog-legged stairs
- b) Turning stairs
- c) Straight stairs
- d) Well stairs

[View Answer](#)

Answer: a

Explanation: It is the most common stairs in schools, houses, other buildings. The flights are at right angles.

3. Baluster in a stair is the _____ member supporting _____

- a) Horizontal, handrail
- b) Vertical, landing
- c) Vertical, handrail
- d) Horizontal, landing

[View Answer](#)

Answer: c

Explanation: The baluster is usually wooden or metallic. It is a vertical member provided at specific intervals and is used to support the handrail.

4. How many types of stairs are there based on the material?

- a) 4
- b) 5
- c) 8
- d) 6

[View Answer](#)

Answer: b

Explanation: The five materials used in stairs are stone, metal, wood, R.C.C. and brick.

5. Speed of an escalator is usually:

- a) 10-20m/min
- b) 30-45m/min
- c) 40-50m/min
- d) 25-30m/min

[View Answer](#)

Answer: d

Explanation: Escalators are electronically moving stairs. They can carry heavy traffic of people. The speed is kept at a minimal of 25-30m/min so that people of all age groups can access it.

6. The space housing the stairs is called:

- a) Staircase
- b) Stair room
- c) Stair head
- d) Stair space

[View Answer](#)

Answer: a

Explanation: Staircase is also used to refer to the stairs, handrail, balusters, other structures as a whole. The space housing and all these are also called staircase.

7. Which IS code gives details about wooden stairs?

- a) IS 2634
- b) IS 2643

c) IS 1634

d) IS 1643

[View Answer](#)

Answer: c

Explanation: IS 1634 gives the code of practice for the design and construction of wooden stairs for houses.

8. _____ stairs are a variation of L shaped stairs.

a) Winder

b) Spiral

c) Half turn

d) Switch back

[View Answer](#)

Answer: a

Explanation: L shaped stairs have a bend, at 90o usually. The bend is achieved by adding a flat landing at the bend transition point. In winder stairs, instead of a flat landing, triangle steps are provided.

9. The decorative cap to the top of a newel post is called:

a) Finial

b) Fillet

c) Easing

d) Apron

[View Answer](#)

Answer: a

Explanation: Newel post is a large baluster used to anchor the handrail. It is usually given a decorative cap to hold on to and is called a Finial.

10. How many types of stone stairs are used?

a) 2

b) 5

c) 4

d) 3

[View Answer](#)

Answer: b

Explanation: These stairs are used in places where durable and hard stones are available locally. The five types are rectangular, spandril, tread and riser, cantilevered tread and built up steps.

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11. After how many stairs is a landing provided in public, residential places?

a) 18

b) 20

c) 12

d) 16

[View Answer](#)

Answer: c

Explanation: Generally, after 10 to 12 steps a landing is to be provided. A person can comfortably walk 10-12 steps without getting exhausted. A landing can be given after a maximum of 16 steps and not more than that. A floor requires 2 flights.

[Plastering](#)

1. Plastering is also called:

a) Pre-casting

b) Pargeting

c) Porting

d) Polishing

[View Answer](#)

Answer: b

Explanation: Pargeting is decorative or water proof plastering that is applied on the walls.

2. _____ is used to ensure that the thickness of plastering is uniform.

a) Bull point

b) Pivot point

c) Bull mark

d) Bench mark

[View Answer](#)

Answer: c

Explanation: It is provided at a specific distance to make sure that the required thickness of plastering is even throughout. It is a small rectangular or hexagonal mark.

3. Before plastering, the surface has to be:

a) Rough

b) Smooth

c) Cemented

d) Watered

[View Answer](#)

Answer: a

Explanation: All the mortar joints and the brick surface has to be slightly scraped so as to obtain a rough surface. Plastering will be able to bond better on to a rough surface.

4. Which IS code gives specifications about cement plaster?

a) IS 1500

b) IS 1221

c) IS 1400

d) IS 1661

[View Answer](#)

Answer: d

Explanation: IS code 1661 deals with the code of practice for the application of cement and cement-lime plastering on buildings.

5. Which of the below is not a plaster type based on the material?

- a) Cement
- b) Gypsum
- c) Pozzolana
- d) Lime

[View Answer](#)

Answer: c

Explanation: Plastering requires a binding material and aggregates. The binding material is cementitious-cement, lime and gypsum. Pozzolana are siliceous compounds and possess no cementitious nature as such. When mixed with water, they can act as a cementitious material. But are generally not used in plastering.

6. In plastering, the 1st coat is called _____ and its thickness should be _____ mm.

- a) Undercoat, 6-9
- b) Floating coat, 6-9
- c) Floating coat, 10-15
- d) Undercoat, 10-15

[View Answer](#)

Answer: d

Explanation: Plastering can either be done in single, 2 or 3 coats. The 1st coat is undercoat of thickness of 10-15mm. 2nd coat is floating coat of 6-9mm thickness. The last coat is the finishing coat of 2-3mm thickness.

7. _____ are used to press mortar and spread it uniformly.

- a) Trowel
- b) Aluminium rod
- c) Floats
- d) Brush

[View Answer](#)

Answer: c

Explanation: Trowel is used for gauging and applying mortar to surface. Aluminium rod is used to strike off excess mortar. Brush is used to clean it.

8. Wood surface requires _____ coats of plastering.

- a) 2
- b) 3
- c) 1
- d) None

[View Answer](#)

Answer: b

Explanation: Wood and metal surface require 3 coats of plastering so that the surface is completely safe and sealed. Stone and brick masonry generally require 2 coats and a single coat is done for low cost construction.

9. In a lime-cement plaster, ratio 1:1:6 corresponds to:

- a) Lime:cement:sand
- b) Cement:Lime:sand
- c) Lime:sand:gravel
- d) Cement:sand:gravel

[View Answer](#)

Answer: b

Explanation: In plastering, a binding material and fine aggregate are used. Since in lime-cement plaster, 2 binding materials are present, a ratio of both material and sand is taken.

10. Which of the below is not a plaster finish?

- a) Rough-cast
- b) Pebble dash
- c) Sand faced
- d) Wooden

[View Answer](#)

Answer: d

Explanation: There is no wooden plaster finish available. Rough-cast is provided to the external surface using 1:1:3 mortar (cement:sand:coarse aggregates). Pebble or flint dash finish involves embedding 10-20mm sized pebbles or flints in 12mm thick plaster. Sand faced finish is provided with 1:1 mortar.
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11. Mud plastering does not require curing.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: In mud plastering, after 2 coats of plastering, a wash of earth, cow dung and cement in 3:2:1 proportion is done. It does not require curing, but should be allowed to dry in shade for 3-4 days.

[Painting](#)

1. In a white wash, after how many hours is dissolved gum added to the solution?

- a) 24 hours
- b) 12 hours
- c) 6 hours
- d) 1 hour

[View Answer](#)

Answer: a

Explanation: White wash is prepared from a fat lime. Fat lime is dissolved in a big drum and it is stirred well. Then, after 24 hours dissolved gum is added to the drum.

2. _____ are cheaper varieties of paint.

- a) Colour wash
- b) Pointing
- c) Distempers
- d) Acrylics

[View Answer](#)

Answer: c

Explanation: Distempers have chalk as a base, water as a carrier and emulsifying agents like glue or casein. To impart colour, pigments are added.

3. A paint normally consists of _____ components.

- a) 3
- b) 5
- c) 4
- d) 6

[View Answer](#)

Answer: d

Explanation: The six components that comprise paint are base, vehicle, solvent, pigment, filler and drier. Out of these, the base, vehicle and solvent are the important ones.

4. _____ paint gets deteriorated when exposed to sun.

- a) Asbestos
- b) Bituminous
- c) Oil
- d) Aluminium

[View Answer](#)

Answer: b

Explanation: Bituminous paint is applied on to iron works under water. It is made by dissolving asphalt or bitumen in oil or petroleum. It has a characteristic black colour.

5. The appearance of glossy patches on the painted surface is called:

- a) Flashing
- b) Blooming
- c) Running
- d) Blistering

[View Answer](#)

Answer: a

Explanation: Flashing is a defect developed on the painted surface. It is identified as glossy patches on the surface. It is caused due to poor quality of paint or of workmanship.

6. Which of the below is a pigment imparting brown colour?

- a) Raw sienna
- b) Soot
- c) Burnt sienna
- d) Ultramarine

[View Answer](#)

Answer: c

Explanation: Raw sienna imparts yellow colour to paint. To get black colour, soot is added. Blue colour can be obtained by adding ultramarine pigment.

7. The component filler in paint does the function of:

- a) Absorbing oxygen
- b) Reducing cost
- c) Consistency
- d) Smooth spreading

[View Answer](#)

Answer: b

Explanation: Fillers are added to reduce the cost of paint. Too much addition of it may weaken the paint. Commonly used ones are alumina, magnesia, barite, charcoal, etc.

8. Saponification is a defect on the painted surface and it is identified by the appearance of:

- a) Wrinkles
- b) Dull patches
- c) Bubbles
- d) Soapy patches

[View Answer](#)

Answer: d

Explanation: Saponification leads to the appearance of soapy patches. It occurs due to the chemical reaction of alkalis. To avoid this, surface must be cleaned and paint should be kept away from strong alkalis.

9. Which of the below is not an example of a base?

- a) White lead
- b) Cobalt
- c) Zinc oxide
- d) Red lead

[View Answer](#)

Answer: b

Explanation: Cobalt is used as a drier. It absorbs oxygen from surroundings and hardens the paints. White lead, zinc oxide and red lead are all examples of a base. They have binding properties and form an opaque coat.

10. Which paint contains polystyrene as a base?

- a) Synthetic rubber

- b) Enamel
- c) Aluminium
- d) Emulsion

[View Answer](#)

Answer: d

Explanation: Emulsion paint contains polystyrene and polyvinyl acetate as a base. They are durable and retain their colour for long. They dry within 15 minutes and hard dry within 2 hours.
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11. Which defect occurs if a paint is applied excessively thick?

- a) Grinning
- b) Running
- c) Wrinkling
- d) Flaking

[View Answer](#)

Answer: c

Explanation: Grinning occurs when under coat and final coat are of different colours. The opacity is insufficient and background colour is visible. Running occurs if the surface is too smooth; paint run off from such parts. Flaking occurs due to poor adhesion, leading to peeling off of paint.

[Damp Proofing](#)

1. DPM stands for:

- a) Damp Proof Material
- b) Damp Proof Mix
- c) Damp Proof Member
- d) Damp Proof Membrane

[View Answer](#)

Answer: d

Explanation: DPM is a membrane material applied to prevent dampness. It can be used for a DPC (Damp Proof Course). An example is laying a polyethylene sheet under concrete slabs.

2. If the soil is dry, DPC for ground floor consists of the layer of:

- a) Metal
- b) Coarse sand
- c) Fine sand
- d) Concrete

[View Answer](#)

Answer: b

Explanation: Coarse sand layer of about 75-100mm thickness is provided over the entire area under the floor. Over this, a layer of plain concrete with a ratio of 1:4:8 of 100mm thickness is laid.

3. Dampness spreads upwards from the ground only.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Dampness does spread from the ground upwards. In addition to this, dampness can also spread from roof downwards due to rain water.

4. At roof slab level over the DPC, _____ are provided.

- a) Tiles
- b) Concrete
- c) P.C.C
- d) Rubber sheet

[View Answer](#)

Answer: a

Explanation: Tiles are provided to reduce the dampness. The treatment of dampness at roof level involves treating parapet and roof slab. A PCC is provided on parapet, then DPC and then tiles on the roof slab.

5. DPC materials can be classified into:

- a) 3
- b) 4
- c) 2
- d) 5

[View Answer](#)

Answer: a

Explanation: The materials can be classified into 3 categories. They are a flexible material, semi rigid materials and rigid materials.

6. DPC materials should ideally be flexible, where differential thermal movements occur.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Although semi rigid and rigid materials can be used, flexible materials are the best. These do not tend to crack or puncture under differential thermal movements, between the material of roof and parapet.

7. Which of the below is an example of semi rigid DPC material?

- a) Plastic sheeting
- b) Cement concrete
- c) Asphalt
- d) Stone

[View Answer](#)

Answer: c

Explanation: Plastic sheeting is an example of a flexible material. Cement concrete and stone are examples of rigid materials.

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8. For DPC at plinth level, which grade of concrete is used?

- a) M10
- b) M20
- c) M25
- d) M15

[View Answer](#)

Answer: d

Explanation: Cement concrete is used to provide DPC at plinth level. 38-50mm thickness of M15 (1:2:4) cement concrete is provided and it serves the purpose under normal conditions.

[RCC, PSC and Ferro-Cement](#)

1. R.C.C. can be classified into:

- a) 2
- b) 3
- c) 4
- d) 5

[View Answer](#)

Answer: a

Explanation: Reinforced cement concrete can be of two types. It can either be pre-cast or be casted in-situ.

2. PSC stands for:

- a) Post-Stressed Concrete
- b) Post-Strained Concrete
- c) Pre-Stressed Concrete
- d) Pre-strained Concrete

[View Answer](#)

Answer: c

Explanation: Pre-Stressed Concrete refers to the block of concrete which has been subjected to compression prior to supporting any loads.

3. _____ is used to construct very thin, hard and strong surface:

- a) R.C.C.
- b) PSC
- c) PCC
- d) Ferro-Cement

[View Answer](#)

Answer: d

Explanation: Ferro-Cement is a system that reinforces mortar with metal (steel, iron bars). It is used for the construction of relatively thin structure like hull of boat, shell roofs, etc.

4. The compression in PSC is done by _____ of high-strength tendons.

- a) Compression
- b) Tensioning
- c) Shearing
- d) Bending

[View Answer](#)

Answer: b

Explanation: Tendons can be a single wire, mesh, threaded bars made from high tensile steels. The pre-stressing is done by tensioning tendons.

5. In an R.C.C structure, the tension zone lies in the:

- a) Top
- b) Middle
- c) Side
- d) Bottom

[View Answer](#)

Answer: d

Explanation: In the R.C.C. structure, there is a neutral axis in the middle, where no compression and tension is there. Layers above it are subjected to compression and the ones below it is subjected to tension.

6. R.C.C. was developed and first used by:

- a) Joseph Monier
- b) John Smeaton
- c) Francois Coignet
- d) Joseph Asphadin

[View Answer](#)

Answer: c

Explanation: Joseph Monier founded ferro-cement. John Smeaton is considered the father of Civil Engineering. Joseph Asphadin founded Portland cement. Francois Coignet was a French industrialist and the first to use iron-reinforced concrete.

7. Which of the below structure doesn't require PSC?

- a) Bridge
- b) Arch
- c) Dam
- d) Silos

[View Answer](#)

Answer: b

Explanation: Arches don't require PSC. They are not under so much compression and loading. All other structures carry heavy loads and hence will be efficient if PSC is used.

8. How many methods of ferro cementing are there?

- a) 3
- b) 2
- c) 4
- d) 6

[View Answer](#)

Answer: a

Explanation: The three methods are armature system, closed mould system and integrated mould system.

9. In which beam tension capacity of steel is greater than combined compression capacity of steel and concrete?

- a) Over-reinforced
- b) Under-reinforced
- c) Singly reinforced
- d) Doubly reinforced

[View Answer](#)

Answer: a

Explanation: Over-reinforced beams have higher tension capacity. So, these beams fail by crushing of compression zone concrete, without any warning.

10. In a PSC, the tensioning system may be classified into:

- a) 3
- b) 2
- c) 5
- d) 4

[View Answer](#)

Answer: b

Explanation: Tensioning can be mono-strand or multi-strand. In mono-strand, only one strand is tensioned at a time. In multi-strand, multiple strands are tensioned simultaneously.

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11. Which of the below is not a property of ferro cement?

- a) Impervious nature
- b) Capacity to resist shock
- c) No need of formwork
- d) Strength per unit mass is low

[View Answer](#)

Answer: d

Explanation: The ferro cement has reinforcement provided in mortar. It has a strength per unit mass higher than R.C.C. It has better tension resisting property.

[Building Services](#)

1. Desiccants are chemicals that:

- a) Remove humidity
- b) Add humidity
- c) Add moisture
- d) Remove moisture

[View Answer](#)

Answer: d

Explanation: Air-conditioning is one of the building services. It can be made based on desiccants, which are chemicals that remove moisture from the air.

2. In a building, to provide ultimate comfort to occupants _____ can be used.

- a) AC
- b) HVAC
- c) Ventilators
- d) HAC

[View Answer](#)

Answer: b

Explanation: HVAC stands for heating ventilation and air-conditioning. This system is installed in buildings to give all the comforts to the occupants via a single unit.

3. Which IS codes gives details about elevators?

- a) IS 27752
- b) IS 38665
- c) IS 14665
- d) IS 27855

[View Answer](#)

Answer: c

Explanation: IS 14665 gives specifications for elevators. It gives the number, capacity of elevator depending upon floor area and a number of floors to be served.

4. The slope of a ramp should not be more than:

- a) 1 in 35
- b) 1 in 20
- c) 1 in 15
- d) 1 in 10

[View Answer](#)

Answer: c

Explanation: Ramps are provided in buildings to allow easy passage for elderly and physically challenged occupants. The slope should not be too steep, it should not be more than 1 in 15.

5. How many types of ventilation are there?

- a) 3

b) 4

c) 2

d) 5

[View Answer](#)

Answer: a

Explanation: The three types are natural (differential temperature of air), mechanical (fans), hybrid or mixed-mode ventilation (design of building).

6. A fire detector cannot detect:

a) Radiation

b) Heat

c) Light

d) Smoke

[View Answer](#)

Answer: c

Explanation: A fire detector can detect the three characteristics of fire-radiation (flame), heat and smoke. It cannot detect the light produced by a fire.

7. When exposed to fire, concrete has very little strength left after:

a) 500°C

b) 300°C

c) 200°C

d) 600°C

[View Answer](#)

Answer: d

Explanation: Concrete decomposes when exposed to heat. Water evaporates, sand, gravel become molten lava like. Up to 200°C, no changes are noticed. At about 600°C, significant loss occurs. At 800-1000°C, it completely gives in.

8. While calculating the handling capacity of lift, the weight of a person is taken as 65kg.

a) True

b) False

[View Answer](#)

Answer: b

Explanation: Lifts can carry people from a range of just 4 to a good 20 number. To decide this, the weight of each person is to be considered. It is assumed as 68kg for one person.

[Building Maintenance](#)

1. How many types of cracks can occur in a building?

a) 3

b) 4

c) 2

d) 6

[View Answer](#)

Answer: c

Explanation: There are 2 types of cracks that can be found in buildings. Non-moving cracks are the result of shrinkage and are usually shallow. Moving cracks are caused due to excessive stress in concrete and generally are wider than 1mm.

2. Creep in concrete structure increases with:

- a) Increase in humidity
- b) Increase in water
- c) Decrease in temperature
- d) Decrease in humidity

[View Answer](#)

Answer: d

Explanation: Creep is small deformation that is formed due to loading on concrete. It is a slow, time dependent process. An increase in temperature and decrease in humidity can cause this.

3. To control corrosion, concrete with _____ is used.

- a) Low permeability
- b) Low thermal coefficient
- c) More cement content
- d) More coarse aggregates

[View Answer](#)

Answer: a

Explanation: If the concrete is less permeable, then there is less chance of moisture, chemical absorption which leads to corrosion of steel bars.

4. The main reason for cracks in masonry joints is:

- a) Moisture
- b) Sulphate
- c) Magnesium
- d) Sodium

[View Answer](#)

Answer: b

Explanation: Sulphate content of bricks to be used in masonry should be checked. These attack the mortar and weakens it, leading to development of cracks. They appear after 2-3 years of construction.

5. Shear cracks between the main wall and cross wall can be corrected using:

- a) Grouting
- b) Rebuilding
- c) Guining
- d) Toothing

[View Answer](#)

Answer: d

Explanation: The place where the main and cross wall joins, there can be cracks developed. It is due to poor bonding between walls. Bonding can be increased by toothing, where a projection of brick is done into the other wall, interlocking it.

6. Which IS code gives details about termite proofing?

- a) IS 6835
- b) IS 6313
- c) IS 5886
- d) IS 5668

[View Answer](#)

Answer: b

Explanation: IS 6313 part I and part II specify the procedure for anti-termite treatment. Termite attacks wood, plastic, leather and rubber. So, to protect components containing these, anti-termite protection is to be given.

7. Leaks in the pitched roof may be caused due to:

- a) Improper slopes
- b) Unfinished roof and wall junction
- c) Depression on top of roof
- d) Heavy wind

[View Answer](#)

Answer: d

Explanation: The first three options are the reasons for leaks in flat roofs. Weather effects like heavy wind, storm, rain can alter the roof structure and cause leakage.

8. The chemical heptachlor in anti-termite proofing has concentration by weight of:

- a) 0.5%
- b) 0.1%
- c) 0.3%
- d) 0.2%

[View Answer](#)

Answer: a

Explanation: The anti-termite chemicals in water emulsion can be any of aldrin, heptachlor and chlordane. Aldrin and heptachlor have concentration by weight of 0.5% and chlordane of 1%.

[Cost Effective Construction Techniques](#)

1. Low cost housing in Kerala was first developed by:

- a) Lawrence Becker
- b) Larry Baker
- c) Laurence Becker
- d) Laurie Baker

[View Answer](#)

Answer: d

Explanation: Laurie Baker was a British born Indian architect. He developed ideas for cost effective, energy efficient buildings.

2. What is the total area allotted for a low-cost house?

- a) 40m²
- b) 30m²
- c) 20m²
- d) 10m²

[View Answer](#)

Answer: c

Explanation: The Planning Commission has recommended the Government of India to adopt the following minimum standard for a low-cost house: – living room (11.1m²), veranda and kitchen 6.5m²), bathroom (1.3m²), lavatory (1.1m²) and total of 20m².

3. In Rat-trap bond masonry, course height is:

- a) 110mm
- b) 75mm
- c) 230mm
- d) 190mm

[View Answer](#)

Answer: a

Explanation: Rat-trap bond masonry uses bricks of size 230x110x75mm. In this masonry, bricks are laid on edges, making the course height to be 110mm. Laying of bricks creates a cavity wall automatically.

4. For ordinary soil, which foundation can reduce cost?

- a) Isolated
- b) Arch
- c) Ram pile
- d) Combined

[View Answer](#)

Answer: b

Explanation: Using arch foundation can reduce cost up to 40%. Foundation is an important part of building and costs higher. A reduction is achieved, without compromising on strength.

5. Which masonry material is used for cost reduction?

- a) Stone blocks
- b) Concrete blocks
- c) Laterite blocks
- d) Cement blocks

[View Answer](#)

Answer: b

Explanation: Concrete blocks consume only 1/3rd of energy used in the production of red bricks. It reduces the wall thickness from 20 to 15cm, and mortar also. Overall reduction in the cost of 10 to 25% can be achieved.

6. Which of the below is not a filler material in filler slabs?

- a) Rubber pieces
- b) Clay pots
- c) Burnt clay bricks
- d) Coconut shell

[View Answer](#)

Answer: a

Explanation: In R.C.C slabs, concrete in the lower portion does not help in anyway because it is weak in tension (bottom zone). Therefore, in filler slabs, it is replaced by certain filler materials, like coconut shells, burnt clay bricks, pots etc.

7. Rat-trap bond masonry requires _____ less mortar.

- a) 10%
- b) 50%
- c) 40%
- d) 20%

[View Answer](#)

Answer: c

Explanation: Rat-trap bond masonry is a technique where bricks are laid on their edges. Hence approximately 25% less bricks and 40% less mortar is used compared to conventional one.

8. For natural and cost-effective ventilation, _____ can be used.

- a) Hollow bricks
- b) Wall openings
- c) Skylight
- d) Brick jali

[View Answer](#)

Answer: d

Explanation: Bricks are arranged in such a way that a jali (hole) is formed. These provide cross ventilation, natural lighting and reduction in cost greatly. They can be used in parapets, living rooms, etc.

9. By using filler slab technique:

- a) 20% saving of concrete is there
- b) Aesthetic ceiling is obtained
- c) Less thermal comfort is there
- d) Load on foundation increases

[View Answer](#)

Answer: b

Explanation: The filler material can be arranged in a systematic way, pattern to give an aesthetically pleasing ceiling. The filler materials can be exposed, instead of plastering them. 5-10% saving of concrete, more thermal comfort and the load on columns and foundation are reduced.

10. Economy can be achieved in doors, windows, ventilator by:

- a) No frame
- b) Less width
- c) Steel frames
- d) Less height

[View Answer](#)

Answer: c

Explanation: Doors, windows and ventilators are openings in the wall that are held on a frame. Not using a frame is economic, but not very aesthetic. Using concrete/steel frames instead of wood can help in reducing cost.
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11. For sloping roofs, ferro cement roofing units can be used.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Instead of using RCC, ferro cement roofing units can be used for sloping roofs. They are lighter and stronger than RCC. The material requirement is also less.

[Basic Surveying Terms](#)

1. How many types of bench mark are there?

- a) 3
- b) 2
- c) 5
- d) 4

[View Answer](#)

Answer: b

Explanation: Bench mark is an object bearing a marked point whose elevation above or below a datum is known. The 2 types are the temporary and permanent bench mark.

2. The difference between magnetic north and geographic north is:

- a) Dip
- b) Strike
- c) Declination
- d) Bearing

[View Answer](#)

Answer: c

Explanation: Declination is determined using the compass. The error is calculated and the necessary addition or deduction is carried out.

3. In the triangulation method, the whole area is divided into:

- a) Scale triangles

- b) Triangles
- c) Obtuse triangles
- d) Well-conditioned triangles

[View Answer](#)

Answer: d

Explanation: Well-conditioned triangles are those triangles with an angle less than or equal to 60° . The plot is divided into such triangles, as it is the easiest figure that can be plotted and analysed.

4. A stone that marks boundary is called:

- a) Merestone
- b) Milestone
- c) Metestone
- d) Limestone

[View Answer](#)

Answer: a

Explanation: If a stone is used to mark a boundary, it is called Merestone. If a tree is on the property line, it is called a Line tree.

5. Which of the below is not a classification of surveying?

- a) Marine
- b) Basement
- c) Astronomical
- d) Land

[View Answer](#)

Answer: b

Explanation: Based on place of survey, the classification includes land, marine and astronomical categories. Basement refers to underground, no survey is performed there.

6. EDM stands for:

- a) Errorless Distance Measurement
- b) Electronic Direct Measurement
- c) Electronic Distance Measurement
- d) Errorless Direct Measurement

[View Answer](#)

Answer: c

Explanation: To locate points, measure angles, distance and perform other surveying operations, an EDM can be used. It gives all the details with a click of button. Total station is an example of EDM.

7. Plane and geodetic surveying are classifications of surveying based on:

- a) Methodology
- b) Earth's curvature
- c) Object of survey

d) Instrument

[View Answer](#)

Answer: b

Explanation: Based on Earth's curvature to be considered or not while surveying, plane and geodetic surveying are there. Earth's curvature is considered in geodetic and not considered in plane surveying.

8. _____ errors are small unavoidable fluctuation.

- a) Random
- b) Gross
- c) Systematic
- d) Mistake

[View Answer](#)

Answer: a

Explanation: Those errors which are made while performing survey are called gross errors. These can accumulate and finally lead to re-doing the whole procedure. Systematic error follows a consistent pattern.

9. Plan is a small-scale representation of a large area.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: Map is a small-scale representation of a large area. Plan is a large-scale representation of a small area.

10. Which of the below is not a means of linear surveying methods?

- a) Theodolite
- b) EDM
- c) Tape
- d) Chain

[View Answer](#)

Answer: a

Explanation: Theodolite is an instrument used to measure angular readings. It is used in angular surveying. All other options are used to take linear measurements.

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11. The term Gore is used to indicate:

- a) Rectangular land
- b) Perimeter of a land
- c) Thin triangular land
- d) A measure of distance

[View Answer](#)

Answer: c

Explanation: Gore is a thin triangular piece of land. Metes and bounds are used to describe the perimeter of the parcel of land. Mete is a measurement of distance.

12. An acre is equal to 107,639 square feet.

a) True

b) False

[View Answer](#)

Answer: b

Explanation: An acre is equal to 43,560 square feet. A hectare is equal to 2.471 acres or 107,639 square feet.

[Chain Surveying](#)

1. An offset is a _____ distance of an object measured from the survey line.

a) Lateral

b) Horizontal

c) Normal

d) Inclined

[View Answer](#)

Answer: a

Explanation: Offsets are taken perpendicular to the survey lines. They are used to mark objects and the lateral distance to them, using an offset rod.

2. Which of the below is not an instrument used to set right angles?

a) Cross staff

b) Site square

c) Optical staff

d) Prism square

[View Answer](#)

Answer: c

Explanation: There is no instrument like an optical staff. Optical square is an instrument which consists of circular box with three slits. Cross staff is a frame of the box mounted on a pole. Prism square is an advanced version of an optical square. Site square consists of two telescopes set at 90°s.

3. How many types of chains are used in chain surveying?

a) 4

b) 5

c) 6

d) 8

[View Answer](#)

Answer: b

Explanation: There can be 5 types of chains used for chain surveying. They are the metric chain, Gunter's chain, engineer's chain, revenue chain and steel band or band chain.

4. Gunter's chain consists of _____ links.

- a) 500
- b) 50
- c) 1000
- d) 100

[View Answer](#)

Answer: d

Explanation: Gunter's chain is also called surveyor's chain and is 66ft long. It consists of 100 links, each being 0.6 ft. Eighty Gunter's chain corresponds to 1 mile.

5. The process of a location of intermediate points on a survey line is:

- a) Aligning
- b) Extending
- c) Ranging
- d) Offsetting

[View Answer](#)

Answer: c

Explanation: Ranging is used to locate intermediate points. They are marked using ranging rods. It is done when a survey line is very long and marks are required to distinguish the line.

6. The biggest of the survey line is called:

- a) First line
- b) Base line
- c) Tie line
- d) Main survey line

[View Answer](#)

Answer: b

Explanation: The line joining the main survey station is called the main survey line. The biggest of the main survey line is the base line, and other features are plotted with respect to this line.

7. Chain surveying uses the principle of:

- a) Traversing
- b) Chaining
- c) Ranging
- d) Triangulation

[View Answer](#)

Answer: d

Explanation: Chain surveying is suitable for a survey of small areas. The area is divided into well- conditioned triangles and triangulation is the principle used.

8. In how many ways can ranging be carried out?

- a) 2

- b) 3
- c) 4
- d) 5

View Answer

Answer: a

Explanation: Ranging is of 2 types – direct and indirect. Direct ranging is done using a line ranger or naked eye. Indirect ranging is done when starting and ending points are not visible.

9. The book in which chain measurements are entered is called:

- a) Field book
- b) Record book
- c) Study book
- d) Chain book

View Answer

Answer: a

Explanation: Field book is used to enter all the measurements done while surveying. It is an oblong book of size 20x12cm and opens length wise.

10. How many types of cross staff are available?

- a) 2
- b) 5
- c) 3
- d) 4

View Answer

Answer: c

Explanation: The three types are open cross staff, French cross staff and adjustable cross staff. Open cross staff has two vertical, opposite slits. French cross staff consists of a hollow octagonal box. The adjustable cross staff consists of two cylinders of equal diameter, one placed on top of the other.
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11. Survey stations may be marked on the ground using a:

- a) Pole
- b) Rod
- c) Pointer
- d) Peg

View Answer

Answer: d

Explanation: Peg is a wooden block with a pointed edge to drive it into the ground. They are generally 2.5-3 cm² and 15cm long, with tapered end.

[Compass Surveying](#)

1. The direction of a line relative to a given meridian is called:

- a) Bearing
- b) Declination
- c) Angle
- d) Dip

[View Answer](#)

Answer: a

Explanation: Bearing of the line gives its direction relative to a given meridian. It can be measured as an angle using any angular measuring instruments.

2. How many types of a compass are used in surveying?

- a) 4
- b) 2
- c) 3
- d) 5

[View Answer](#)

Answer: b

Explanation: The two compass types used in surveying are Prismatic Compass and Surveyor's Compass. Prismatic Compass is most commonly used one for surveying.

3. _____ bearing is measured in the direction of survey.

- a) Primary
- b) First
- c) Fore
- d) Front

[View Answer](#)

Answer: c

Explanation: Fore bearing is used to indicate the angle measured in the direction of progress of the survey. The angle measured in the opposite direction of progress of the survey is called back bearing.

4. In a reduced bearing system, bearing is measured from:

- a) Nearest one (North or South)
- b) South
- c) West
- d) North

[View Answer](#)

Answer: a

Explanation: In reduced bearing system bearing is measured from the nearest one, North or South is anticlockwise or clockwise direction. It aims at locating nearest bearing.

5. Prismatic Compass is based on the reduced bearing system.

- a) True

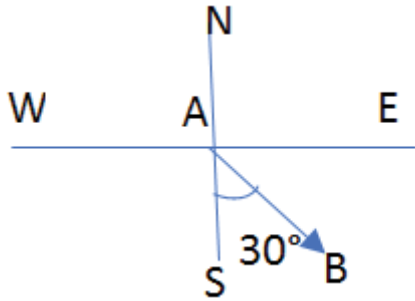
b) False

[View Answer](#)

Answer: b

Explanation: Prismatic Compass functions based on WCB – whole circle bearing and surveyor's compass functions based on the reduced bearing system.

6. The bearing of line AB as shown below is represented in reduced bearing as:



a) N150°

b) E60°S

c) S30°

d) S30°E

[View Answer](#)

Answer: d

Explanation: Reduced bearing involves measurement in shortest way possible. It is represented as S 30° E to indicate bearing of 30° in anticlockwise direction from South.

7. How many meridians are used in surveying?

a) 6

b) 8

c) 3

d) 5

[View Answer](#)

Answer: c

Explanation: True, magnetic and arbitrary meridians are used. True meridian passes through true North and South. Magnetic meridian passes through magnetic North and South. Arbitrary meridian is used for rough purposes.

8. _____ is a term used that prevents the needle from pointing to the magnetic North in a given locality.

a) Local attraction

b) Declination

c) Deviation

d) Local distraction

[View Answer](#)

Answer: a

Explanation: While reading a compass, sometimes needle might be slightly deviated from magnetic North. It can be due to any weather conditions, magnetic objects nearby. It has to be corrected to get accurate readings.

9. _____ line is the line drawn through points of the same declination.

- a) Polygonic
- b) Isogonic
- c) Syngonic
- d) Agonic

View Answer

Answer: b

Explanation: Isogonic line passes through points of the same declination. Agonic line passes through points of zero declination. Other options are invalid.

10. Which of the below is not a temporary adjustment of the prismatic compass?

- a) Centring
- b) Levelling
- c) Focussing prism
- d) Adjusting sight vane

View Answer

Answer: d

Explanation: In a prismatic compass, the sight vanes are generally not adjustable. In surveyor's compass, it's one of the permanent adjustments done.

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11. How many types of variations in declination are there?

- a) 4
- b) 5
- c) 2
- d) 3

View Answer

Answer: a

Explanation: The four types are diurnal (daily), annual (yearly), secular (periodic) and irregular variations.

[Plane Table Surveying](#)

1. _____ instrument is used to sight to an object.

- a) Compass
- b) U-frame
- c) Plumbing fork
- d) Alidade

View Answer

Answer: d

Explanation: Alidade is a straight edge with some form of sighting device. It can be plain (with slits) or telescopic. It is kept on a plane table and objects are sighted.

2. How many methods of plane table surveying are there?

- a) 2
- b) 4
- c) 1
- d) 3

[View Answer](#)

Answer: b

Explanation: There are four ways to perform plane table surveying. They are radiation, inter-section, traversing and resection. First two are employed for locating details and other two for locating plane table stations.

3. Plane table (PT) surveying is a _____ method.

- a) Graphical
- b) Linear
- c) Circular
- d) Angular

[View Answer](#)

Answer: a

Explanation: In the graphical method of surveying, objects are sighted and taken down as drawings (lines) on a paper. The line gives angle, distance of the object from the station.

4. Plane table is made of:

- a) Metal
- b) Rubber
- c) Wood
- d) Plastic

[View Answer](#)

Answer: c

Explanation: Plane table is a well-seasoned wooden piece. It is polished and a smooth surface is given on top. The middle bottom portion is threaded to attach a tripod.

5. Which of the below is used for levelling a plane table?

- a) Plumb bob
- b) Spirit level
- c) Compass
- d) U-frame

[View Answer](#)

Answer: b

Explanation: A spirit level is a rectangular box, containing a small bubble inside it. It is placed on the table, table is moved and fixed when the bubble is centralised.

6. Which of the below is not an advantage of PT survey?

- a) Used for accurate works

- b) Less costly
- c) Field book is not required
- d) Rapid method

[View Answer](#)

Answer: a

Explanation: It is used only to locate a certain local object. It doesn't give accurate results and can't be used for high precision works.

7. How many ways are there to orient a plane table?

- a) 1
- b) 3
- c) 2
- d) 4

[View Answer](#)

Answer: c

Explanation: Orientation refers to the process of keeping the table to the position which is occupied at first station. The point on paper and ground should match. It can be done by using through compass and back sighting.

8. Plan table surveying uses the methodology of:

- a) Triangulation
- b) Contouring
- c) Ranging
- d) Traversing

[View Answer](#)

Answer: d

Explanation: Traversing is a methodology where the number of connected lines are there whose length is measured using tape/chain and angle using any angle measuring instrument. PT survey uses this methodology.

9. A plumbing fork is used to _____ the plane table.

- a) Focus
- b) Centre
- c) Orient
- d) Level

[View Answer](#)

Answer: b

Explanation: Plumbing fork is also called U-fame. It has a U-shaped frame which can be clamped onto the plane table. The lower end has provision for suspending a plumb bob. It is used to centre the table w.r.t station.

10. In the method of an intersection, only one linear measurement is made.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Only one linear measurement is made in the intersection method. Base line is the line showing distance between two instrument stations. This method is also called graphical triangulation.

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11. Which of the below is not a method of doing resection?

- a) Back sighting
- b) Solving two-point problem
- c) Solving three-point problem
- d) Solving four-point problem

[View Answer](#)

Answer: d

Explanation: There are four methods to perform the resection. They are using a compass, by back sighting, solving two-point and three-point problem. There is no method as solving four point problem.

[Equipments Used in Levelling](#)

1. How many chief types of levels are used in levelling?

- a) 6
- b) 3
- c) 4
- d) 2

[View Answer](#)

Answer: c

Explanation: There are 4 chief types of levels used. They are Dumpy level, Wye Level, Reversible level and Tilting level.

2. A levelling staff is used to establish:

- a) Horizontal line of sight
- b) Vertical line of sight
- c) Location of points
- d) Distance of points

[View Answer](#)

Answer: a

Explanation: A levelling staff is a straight rectangular rod, with graduations, zero starting from foot of staff. It is placed at the required point and horizontal line of sight from a level is made.

3. Dumpy level was originally designed by:

- a) Fennel
- b) Heerbrugg
- c) Stanley
- d) Gravatt

[View Answer](#)

Answer: d

Explanation: Gravatt designed the Dumpy level; which consists of a telescope secured in two collars fixed by adjusting screws.

4. How many categories of levelling staff are there?

- a) 4
- b) 2
- c) 3
- d) 5

[View Answer](#)

Answer: b

Explanation: There are 2 categories – self reading staff and target staff. Self-reading staff can be directly read from the instrument through the telescope. Target staff consists of moving target against which reading is to be taken.

5. Which of the below is used to make a line of sight horizontally in a level?

- a) Foot screws
- b) Levelling head
- c) Telescope
- d) Tangent screws

[View Answer](#)

Answer: a

Explanation: There is a tube and bubble is enclosed in it. Using 3 foot screws, the bubble is centralised. Once it is stable, the level is said to have maintained a horizontal line of sight.

6. A digital level reads a:

- a) Target staff
- b) Barcoded staff
- c) Digital staff
- d) Telescopic staff

[View Answer](#)

Answer: b

Explanation: Digital level is an electronic level. It is set up on a tripod and it reads a barcoded staff. All the details are fed into the memory of level and can be retrieved on a computer.

7. Which of the below cannot be used to measure vertical heights?

- a) Self level
- b) Aneroid barometer
- c) Transit
- d) Hypsometer

[View Answer](#)

Answer: c

Explanation: Vertical measurement can be approximately taken using barometer and hypsometer. These determine pressure difference at 2 elevations and results can be concluded from these.

8. How many types of self-reading staff are available?

- a) 5
- b) 2
- c) 3
- d) 4

[View Answer](#)

Answer: c

Explanation: There are 3 types of self-reading staff. They are solid, folding and telescopic staff.

9. Which of the below is not common in all levelling equipment?

- a) Telescope
- b) Level vials
- c) Level rods
- d) Tilting screws

[View Answer](#)

10. Level vials can be of _____ types.

- a) 4
- b) 3
- c) 5
- d) 2

[View Answer](#)

Answer: d

Explanation: Level vials contain a bubble, which is to be centralised to obtain a horizontal line of sight. It may be of bulls-eye type (circular shaped) or vial type (tube shaped).
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11. Abney level is a type of hand level.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Hand level is a hand held instrument. Abney level is one of these. It includes a clinometer to measure vertical angles.

12. For accurate levelling _____ is attached inside telescope in an automatic level.

- a) Alinometer
- b) Compensator
- c) Cross hairs
- d) Double lens

[View Answer](#)

Answer: b

Explanation: Compensator is also called stabilizer. It consists of 2 fixed prisms and it creates an optical path between eye piece and objective. It results in exact positioning of the line of sight due to gravity.

Methods of Levelling

1. How many methods are used in levelling?

- a) 3
- b) 2
- c) 4
- d) 5

[View Answer](#)

Answer: b

Explanation: The 2 methods are the height of instrument method and rise and fall method. These are used to evaluate heights of various points.

2. How many types of levelling are there?

- a) 3
- b) 2
- c) 4
- d) 5

[View Answer](#)

Answer: c

Explanation: There are 4 ways to perform levelling. They are direct levelling, trigonometric levelling, barometric levelling and stadia levelling.

3. Trigonometric levelling is also called:

- a) Indirect levelling
- b) Differential levelling
- c) Fly levelling
- d) Profile levelling

[View Answer](#)

Answer: a

Explanation: In trigonometric levelling, the horizontal distance and vertical angle are measured from the station to the object. It uses trigonometric relations to compute the vertical height of a point.

4. In _____ levelling, the first and last point are at a far distance.

- a) Fly
- b) Differential
- c) Profile
- d) Reciprocal

[View Answer](#)

Answer: b

Explanation: In differential levelling, a number of inter-stations are located and then the instrument is shifted to each station and the elevation is observed.

5. Stadia levelling is a modified form of:

- a) Fly levelling
- b) Differential levelling
- c) Simple levelling
- d) Trigonometric levelling

[View Answer](#)

Answer: d

Explanation: Tacheometer principle is used to determine the elevation of points. Line of sight is inclined and it is more suitable for surveying in hilly terrains.

6. The last reading taken from the instrument is called:

- a) End sight
- b) Free sight
- c) Fore sight
- d) Back sight

[View Answer](#)

Answer: c

Explanation: Fore sight (FS) is noted as last reading and back sight (BS) is noted as first reading taken from the instrument. Any intermediate points are noted down as intermediate sight (IS).

7. Reciprocal levelling is used when,

- a) Flat terrain
- b) Obstacles are there
- c) BM not visible
- d) Highway construction

[View Answer](#)

Answer: b

Explanation: If the points to surveyed lie on opposite banks of a river, reciprocal levelling can be used. It is done from both sides to eliminate chances of error.

8. In a hilly terrain, staff reading is more at:

- a) Lower point
- b) Higher point
- c) First point
- d) Last point

[View Answer](#)

Answer: a

Explanation: In hilly terrain, the lowest point will give the highest staff reading. It is at a lower level compared to others and hence has more height.

9. Which is the arithmetic check for the height of instrument method?

- a) $\sum FS + \sum BS = \text{First RL} + \text{Last RL}@$
- b) $\sum BS - \sum FS = \text{Last RL} - \text{First RL}@$
- c) $\sum FS + \sum BS = \text{Last RL} + \text{First RL}@$
- d) $\sum BS - \sum FS = \text{First RL} - \text{Last RL}@$

[View Answer](#)

Answer: b

Explanation: To check if the readings are written properly, an arithmetic check is done. The sum of back sight (BS) and Fore sight (FS) are subtracted. It should be equal to the difference of the last and first reduced level (RL).

10. Which instrument is used in trigonometric levelling?

- a) Wye level
- b) Compass
- c) Theodolite
- d) Dumpy level

[View Answer](#)

Answer: c

Explanation: Trigonometric levelling involves measurements that are angular and hence requires an angle measuring instrument, like theodolite.

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11. In levelling, error due to earth's curvature is to be corrected using:

- a) $C_c = 0.0673D^2$
- b) $C_c = 0.0112D^2$
- c) $C_c = 0.0136D^2$
- d) $C_c = 0.0785D^2$

[View Answer](#)

Answer: d

Explanation: Correction for earth's curvature and refraction is to be applied. C_c is given by $0.0785D^2$. Combined correction $C_c - C_r$ is given by $0.0673D^2$.

[Contouring](#)

1. Contours can be found in a _____ map.

- a) Political
- b) Topographical
- c) Physical
- d) Thematic

[View Answer](#)

Answer: b

Explanation: These are imaginary lines, which passes through points of same or equal elevations. These are found in topographical maps to represent features like mountains, valleys, etc.

2. Contour Maps are not mandatory in civil engineering projects like road works, dams, canals, etc.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: To identify a suitable site for these projects, to study the nature of ground and slopes and to make an estimate for earth work, a contour map of that region is required.

3. How many methods of contouring are present?

- a) 5
- b) 3
- c) 2
- d) 4

[View Answer](#)

Answer: c

Explanation: There are 2 methods of contouring: direct and indirect. In direct method, the points of elevation are located physically and then plotted on the map. Indirect method uses contouring with the help of grids.

4. Indirect methods uses how many methods?

- a) 3
- b) 4
- c) 2
- d) 6

[View Answer](#)

Answer: a

Explanation: The three methods are: method of a square (area divided into squares and grid point taken), method of cross-section (cross sectional points taken) and tacheometric method (adopted for very steep hills).

5. The commonly used squares in the method of a square is:

- a) 10m x 10m to 5m x 5m
- b) 10m x 10m to 15m x 15m
- c) 5m x 5m to 20m x 20m
- d) 5m x 5m to 10m x 15m

[View Answer](#)

Answer: c

Explanation: The size of the square varies from 5m x 5m to 20m x 20m. These grid points are found by levelling and then plotted on drawing sheets.

6. Which of the below methods is used for interpolating contour points between 2 points?

- a) Arithmetic calculation
- b) Using measuring tapes

- c) Taking pictures of area
- d) Using a theodolite

[View Answer](#)

Answer: a

Explanation: There are 3 different ways to interpolate contour points between 2 points; arithmetic calculation, estimation and graphical or mechanical method.

7. The contour interval is the same for all purposes.

- a) True
- b) False

[View Answer](#)

Answer: b

Explanation: The interval is kept as 2m for large projects like highways, railways, etc and 0.5m for earth work, building sites, etc.

8. The curves used for drawing lines between points in a contour line is:

- a) Radial curve
- b) French curve
- c) C-curve
- d) Inverted curve

[View Answer](#)

Answer: b

Explanation: The contour points are first located. Corresponding points are joined by a smooth line and for curves, a French curve is used.

9. Which shaped lines indicate the presence of a ridge?

- a) V-shaped
- b) U-shaped
- c) L-shaped
- d) S-shaped

[View Answer](#)

Answer: b

Explanation: The contour line with U-shape, which has convexity towards a lower ground shows the presence of a ridge.

10. The line which separates the catchment basin from the rest of the area is:

- a) Ridge line
- b) Dam line
- c) Catchment line
- d) Watershed line

[View Answer](#)

Answer: d

Explanation: The area where rain water drains into the river is the catchment area of the river. The watershed line is then marked. The area inside this line is measured in order to study flood levels.

[EDM – Total Station](#)

1. How many types of EDM instruments are there based on wavelength?

- a) 2
- b) 4
- c) 5
- d) 3

[View Answer](#)

Answer: d

Explanation: The 3 types are microwave (Tellurometer), infrared (Distomat) and visible range (Geodimeter).

2. Which of the below is used up to a range of 100km?

- a) Infrared
- b) Microwave
- c) Visible range
- d) Ultra-violet

[View Answer](#)

Answer: b

Explanation: Microwave EDMs can be used up to a range of 100km to locate the object. Infrared is a commonly used type, with a range up to 3km.

3. A total station is a combination of:

- a) EDM and Theodolite
- b) Compass and EDM
- c) Electronic Theodolite and EDM
- d) EDM and electronic Compass

[View Answer](#)

Answer: c

Explanation: Total station can be used to measure distance and angles. It employs an electronic theodolite and an EDM to serve this purpose.

4. Which unit in total station processes data collected?

- a) Data collector
- b) EDM
- c) Storage system
- d) Microprocessor

[View Answer](#)

Answer: d

Explanation: Microprocessor is the unit that processes the data collected and uses it to compute various features like horizontal and vertical distances, slopes, elevation, etc.

5. The bubble in a total station is centralised using:

- a) Tripod
- b) Levelling screw
- c) Tangent screw
- d) Foot screw

[View Answer](#)

Answer: a

Explanation: Total station is affixed on to the tripod. The legs of the tripod are extended/contracted one by one till the bubble is centralised.

6. Which is the latest development in a total station?

- a) High resolution
- b) High accuracy
- c) Robotic
- d) Automatic

[View Answer](#)

Answer: c

Explanation: Nowadays, robotic total stations are available. They can be operated from a distance via remote control. It eliminates the need for an assistant staff man.

7. Which of the below is not an application of total station?

- a) Crime scene investigation
- b) Furniture manufacture
- c) Mining
- d) Archaeology

[View Answer](#)

Answer: b

Explanation: Total station can be used to reconstruct the crime scenes, in mining to locate tunnels and mines and in archaeology to record excavations. It is not used in the manufacture of furniture.

8. How many types of EDM are there based on the reflector type?

- a) 3
- b) 5
- c) 4
- d) 2

[View Answer](#)

Answer: a

Explanation: The 3 types are active, passive and no reflector. In active type, power is required to operate reflectors. In passive type, a prism reflector is used.

9. Total station can be used in meteorology.

- a) True

b) False

[View Answer](#)

Answer: a

Explanation: It is used to track hot air balloons for determining upper level winds. It is also used to track ceiling balloons to determine the height of cloud layers.

10. What is the range of medium range EDM?

a) <5kms

b) 15-25kms

c) 5-25kms

d) >25kms

[View Answer](#)

Answer: c

Explanation: There are 3 types of EDM based on the range of measurement. They are the short, medium and long range. Short range is <5kms, long range is above 25kms.

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11. Each point entered in a total station is stored in:

a) Hard discs

b) Electronic books

c) Data storage

d) Chip

[View Answer](#)

Answer: b

Explanation: Electronic book works as a compact disc. Its capacity varies from 2000-4000 points data. Data can be unloaded to a computer and then reused.

[Environmental Engineering](#)

1. The living environment, the biosphere consists of _____ components.

a) 2

b) 4

c) 1

d) 3

[View Answer](#)

Answer: d

Explanation: The biosphere consists of 3 components – land (lithosphere), water (hydrosphere) and air (atmosphere). They are all necessary for life to sustain on earth.

2. The presence of gas in water is indicated by:

a) Fizzing sound

b) Foam

c) Bubbles

d) Colour change

[View Answer](#)

Answer: b

Explanation: Water may be polluted by the presence of some unpleasant gases from industries. They are recognized by the foaming of water.

3. To test turbidity of polluted water in the field, _____ is used.

- a) Baylis Turbidimeter
- b) Jackson Turbidimeter
- c) Turbidity tube
- d) Turbidity rod

[View Answer](#)

Answer: d

Explanation: The first three options are used to test turbidity in the lab. The turbidity rod is a graduated aluminium rod.

4. Refuse may be of _____ types.

- a) 2
- b) 3
- c) 4
- d) 5

[View Answer](#)

Answer: a

Explanation: The rejected materials which are collected in dustbins and the foul discharges that are carried by underground drains are termed as refuse. It may be dry refuse (grass, paper, cloth, vegetable peels) or wet refuse (urinals, kitchen discharges).

5. In the method of trenching, the size of the trench may be:

- a) 12 x 5 x 2m
- b) 15 x 5 x 3m
- c) 12 x 3 x 2m
- d) 15 x 5 x 5m

[View Answer](#)

Answer: c

Explanation: Trenching is a method of disposing of solid waste. Trench is dug of size 12 x 3 x 2m, waste is filled and levelled and then covered with a layer of earth or ash.

6. Hydrogen Peroxide is generated from:

- a) Photochemical smog products
- b) Explosive manufacturing industry
- c) Automobile exhausts
- d) Thermal power plants

[View Answer](#)

Answer: a

Explanation: It is generated from the photochemical smog products. It is a common pollutant in the air and can cause lungs irritation when inhaled.

7. When some chemical is mixed with water, _____ is formed.

- a) Solution
- b) Floc
- c) Bubbles
- d) Foam

[View Answer](#)

Answer: b

Explanation: Coagulation can be explained by this method. Floc is the thick gelatinous precipitate which forms when chemicals (coagulants) are mixed with water.

8. Which of the below leads to disturbance of nitrogen fixation in the soil?

- a) Urban waste
- b) Fertilizers
- c) Pesticides
- d) Industrial effluents

[View Answer](#)

Answer: b

Explanation: Use of excess fertilizers destroys the microbial plant life in the soil. It leads to disturbance of nitrogen fixation, which is an essential process in soil.

9. _____ is the simplest equipment used for collection of solid particulates.

- a) Inertial separators
- b) Filters
- c) Settling chamber
- d) Cyclones

[View Answer](#)

Answer: c

Explanation: It consists of a chamber in which the velocity of carrier gas is reduced in order to allow particulates to settle out of moving stream under the action of gravity.

10. Pollution cases can be classified into _____ types.

- a) 4
- b) 2
- c) 5
- d) 6

[View Answer](#)

Answer: b

Explanation: There can be two types based on special dimensions. They are localised pollution cases (spill accidents) and diffused pollution cases.
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11. _____ is a raw material sent to and processed in a waste recycling plant.

- a) Recyclant
- b) Nodules
- c) Particulars
- d) Recyclate

[View Answer](#)

Answer: d

Explanation: It is used to form new products. For example, plastic bottles can be a recyclate. It is Collected and processed to manufacture new ones.

12. What are the main constituents of the environmental cycles?

- a) Water cycle and food cycle
- b) Water cycle and nutrient cycle
- c) Nutrient cycle
- d) Water cycle and air cycle

[View Answer](#)

Answer: b

Explanation: The environmental cycles are natural processes in which the different elements of the environment are cycled in various forms. These include the water cycle and nutrient cycle (which include Carbon, Nitrogen, Oxygen and Phosphorus cycles, etc.

13. Failures within hydrosphere in oxygen cycle can result in the development of:

- a) Hyperoxic zones
- b) Hypoxic zones
- c) Hydrolic zones
- d) Hydroxic zones

[View Answer](#)

Answer: b

Explanation: Hypoxic zones are also called dead zones. These are areas with low oxygen content and can be inhabitable for living organisms. Any failure in the hydrosphere within oxygen cycle can lead to the formation of hypoxic zones.

[Wastewater Management](#)

1. The term 'Sullage' refers to:

- a) Fresh wastewater
- b) Septic wastewater
- c) Wastewater from kitchen, laundry
- d) Toxic wastewater

[View Answer](#)

Answer: c

Explanation: The domestic wastewater generated from household laundry, preparation of food, cleaning of utensils and personal washing is called sullage.

2. Wastewater can become septic by the loss of:

- a) Dissolved oxygen content
- b) Carbon content
- c) Organic compounds
- d) Water content

[View Answer](#)

Answer: a

Explanation: In conditions of warm weather, the dissolved oxygen content of the wastewater loses and it becomes septic. It has an offensive odour of hydrogen sulphide.

3. Which one of the below is not an attribute of drinking water?

- a) Aesthetics
- b) Economic
- c) Safety
- d) Source

[View Answer](#)

Answer: d

Explanation: Aesthetics refers that the water should be colourless, odourless and pleasing to taste. Safety means it should be free from any chemicals or pathogens. And it should be economic for everyone.

4. The extent of water treatment depends on how many factors?

- a) 5
- b) 2
- c) 3
- d) 4

[View Answer](#)

Answer: b

Explanation: The extent of treatment depends on 2 factors- the quality of water (depends on the source) and the beneficial uses (high quality for domestic, production sector, low quality for housekeeping, a germ free for recreational and for agricultural purposes having low TDS, Na ratio, etc.).

5. One of the major objectives of water treatment plants is the removal of turbidity.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: Turbidity is the presence of solid particles in water. The removal of it removes the colour, taste, odour producing components and makes water pleasant and safe to drink.

6. What is added to the water treatment tank to settle the colloidal particles?

- a) Alum
- b) Alum and lime
- c) Lime

d) Potash

[View Answer](#)

Answer: b

Explanation: Chemicals like alum and lime are added to the raw water. Then a rapid mix is done to mix the chemicals with the water. After this, it goes into the coagulation unit, where the colloidal particles combine to form a flock.

7. Disinfection of water in our country is mainly done by _____

a) Oxygenation

b) Hydration

c) Chlorination

d) Filtration

[View Answer](#)

Answer: c

Explanation: Disinfection is the most inexpensive way of killing the microorganisms present in the water. The water is chlorinated and some residual chlorine of 0.5mg/litre is left so that contamination in the distribution system is taken care of.

8. Which minerals and in what form are present in ground water?

a) Fe & Mn in Ferrous and Manganous

b) Fe & Cu in Ferric and Cupric

c) Fe & Mn in Ferric and manganous

d) Cu & Mn in Cuprous and manganous

[View Answer](#)

Answer: a

Explanation: Both these are present in their reduced forms. If the ground water has more than the permissible amounts (Fe less than or equal to 0.3mg/litre and $Mn \leq 0.05\text{mg/ltr}$) then it should be treated.

9. How many types of wastewater treatment plants are there based on the type of wastewater?

a) 5

b) 4

c) 2

d) 3

[View Answer](#)

Answer: d

Explanation: There are 3 types- Sewage, Industrial and Agricultural.

10. On how many conditions does the intervention of wastewater depend on?

a) 5

b) 7

c) 6

d) 4

[View Answer](#)

Answer: b

Explanation: The seven factors are ground conditions, ground water level, location and type of water source, topography, quantity and quality of wastewater produced, climatic, socio-cultural factors.

[Solid Waste Management](#)

1. How many major sources of solid waste are there based on their origin?

- a) 10
- b) 5
- c) 9
- d) 6

[View Answer](#)

Answer: c

Explanation: There are broadly 9 sources of solid waste. They are residential, industrial, commercial, institutional, construction & demolition areas, municipal services, treatment plants, agriculture and biomedical.

2. Which of the below is not an idea behind solid waste management?

- a) Control of waste generation
- b) Storage and collection
- c) Disposal
- d) Stop waste generation

[View Answer](#)

Answer: d

Explanation: The generation of solid waste cannot be stopped. The idea behind solid waste management is to reduce and eliminate the adverse effects of these on the environment and human health.

3. The number of functional components of solid waste management is:

- a) 5
- b) 3
- c) 6
- d) 4

[View Answer](#)

Answer: c

Explanation: The six functional components in order are waste generation (identification of waste), onsite handling & storage (at site of waste), waste collection (collecting from different sources), waste transfer (local to regional site), waste processing (sorting of reusable/recyclable) and disposal (at landfills/waste to energy).

4. The term ISWM refers to:

- a) International Solid Waste Management
- b) Integrated Solid Waste Management
- c) Integrated Solid Waste Machine
- d) International Solid Waste Mechanism

[View Answer](#)

Answer: b

Explanation: It stands for Integrated Solid Waste Management. It refers to the selection and use of appropriate techniques for the disposal of solid waste.

5. Under which rule of Government, guidelines for solid waste management are followed today?

- a) Municipal Solid Waste Rules, 2000
- b) Municipal Solid Waste Rules, 2016
- c) Solid Waste Rules, 2000
- d) Solid Waste Rules, 2016

[View Answer](#)

Answer: d

Explanation: At present, we have to follow the Solid Waste Management Rules, 2016. This new rule was notified on 8th April 2016 and it supersedes the Municipal Solid Waste Rules, 2000. This new sets of rules have been extended to all Indian local bodies.

6. The average composition of Municipal solid waste is:

- a) 41% organic, 40% inert & 19% recyclable
- b) 20% organic, 60% inert & 20% recyclable
- c) 30% organic, 20% inert & 50% recyclable
- d) 19% organic, 41% inert & 40% recyclable

[View Answer](#)

Answer: a

Explanation: The bulk of organic waste arrives from households and agriculture. The inert waste is generated from construction sites, demolitions, public places, etc.

7. There are _____ ways to treat waste thermally.

- a) 5
- b) 3
- c) 2
- d) 6

[View Answer](#)

Answer: b

Explanation: The process which use heat to treat the waste are referred to as a thermal treatment. These include incineration (combustion of waste & recover energy for electricity/heating), pyrolysis (decomposition of organic waste with low oxygen and high temperature), and open burning (environmentally harmful and mostly practical).

8. How many types of landfills are there?

- a) 3
- b) 2
- c) 5
- d) 4

[View Answer](#)

Answer: a

Explanation: They are sanitary landfills, controlled dumps and bioreactor landfills. Sanitary landfills are the most

common and are situated where the land features aid in decomposition. Controlled dumps are well planned sites and bioreactor landfills use a superior microbiological process for decomposition.

9. Bio-medical waste can be effectively managed by the thermal process.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: The thermal process uses heat in varying temperatures to disinfect the pathogens present. Autoclave & microwave process uses low heat whereas incinerator and hydroclaring use high heat to render the waste pathogen free.

10. The WHO has classified the bio-medical waste into _____ categories.

- a) 5
- b) 4
- c) 3
- d) 2

[View Answer](#)

Answer: b

Explanation: The WHO has classified these into 4 categories- infectious (waste from surgeries and any material containing pathogens), pathological (tissues/organs/drugs, etc which are not required), radioactive (contaminated with a radioactive substance) and others (waste from hospital housekeeping/kitchen).
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11. Which gas produced in open dumps from the decomposition of biodegradable waste?

- a) Ethane
- b) Methane
- c) Propene
- d) Ethene

[View Answer](#)

Answer: b

Explanation: Methane is released by the decomposition under anaerobic conditions. This can cause fires and explosions and promote global warming too.

[Sustainable Engineering](#)

1. Carbon footprint can be measured by:

- a) Carbon dating
- b) Instruments
- c) Carbon accounting
- d) Formula

[View Answer](#)

Answer: c

Explanation: Carbon footprint is the total set of greenhouse gas emissions caused by an individual, event, organisation or product. It is expressed as carbon dioxide equivalent. It can be measured by assessment of GHG (greenhouse gas) levels or activities like carbon accounting.

2. How many types of ecological pyramids are there?

- a) 3
- b) 2
- c) 4
- d) 5

[View Answer](#)

Answer: a

Explanation: Ecological pyramid is a graphical representation used to show bio productivity at each trophic level. The three types are the pyramid of energy, pyramid of numbers and pyramid of biomass.

3. A legally binding agreement between 2 or more nation states relating to environment is:

- a) BEA
- b) BA
- c) MA
- d) MEA

[View Answer](#)

Answer: d

Explanation: MEA stand for Multilateral Environmental Agreement. When it is between 2 nation states, it is BEA – Bilateral Environmental Agreement. These are predominantly produced by the United Nations.

4. _____ is a programme run by UN related to sustainable development.

- a) GHG indicator
- b) Agenda 21
- c) IPCC
- d) UNEP

[View Answer](#)

Answer: b

Explanation: Agenda 21 is a comprehensive blueprint of action to be taken globally, nationally and locally by governments of member nations of UN and those major groups in every area in which humans impact on the environment.

5. For a gold LEED certification, how many points are required?

- a) 40-49
- b) 60-79
- c) 50-59
- d) 80-110

[View Answer](#)

Answer: b

Explanation: LEED is Leadership in Energy and Environmental Design. It has four levels – certified (40-49 points), silver (50-59), gold (60-79) and platinum (80-110 points).

6. Which of the below green building in India has received a platinum LEED certification?

- a) Dabur India, Chandigarh
- b) Logix Cyber Park, UP
- c) Unitech Commercial Tower, Chandigarh
- d) Suzlon One Earth, Pune

[View Answer](#)

Answer: d

Explanation: This building can accommodate 2300 people, has used low energy materials, thus reducing carbon footprint. 90% of occupied space has access to natural daylight.

7. _____ is the conventional source for hydel power.

- a) Tidal wave
- b) Currents
- c) Water
- d) Ripples

[View Answer](#)

Answer: c

Explanation: Hydel power is obtained from a high velocity of running water. It is abundantly present. It is used for a longer period of time. It is an exceptional case of conventional energy.

8. The first academic publication about ecological footprints was in:

- a) 1992
- b) 1990
- c) 1993
- d) 1994

[View Answer](#)

Answer: a

Explanation: William Rees published the first ecological footprint in 1992. The concept and calculation was developed as the PhD dissertation of Mathis Wackernagel under Rees' supervision from 1990-1994.

9. Which of the below is a global scale environmental issue?

- a) Eutrophication

- b) Regional ozone
- c) Climate change
- d) Pollution

[View Answer](#)

Answer: c

Explanation: These are three scales of environmental issues – local, regional and global. Climate change, global warming, stratospheric ozone less, etc. are all issues at a global level.

10. Carbon can be stored in organic matter in the form of:

- a) Biomass
- b) Biofuel
- c) Bioenergy
- d) Bio carbon

[View Answer](#)

Answer: a

Explanation: It is stored in the roots of trees and organic matter for decades in the form of biomass. The carbon from these are released into the atmosphere on decomposition.

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11. The ‘Miracle Material’ that can turn CO₂ into liquid fuel is:

- a) Propene
- b) Copper
- c) Graphene
- d) Potassium

[View Answer](#)

Answer: c

Explanation: Graphene quantum dots can recycle waste CO₂ to fuel. Scientist Pulickel Ajayan has shown the conversion of CO₂ into ethylene and ethanol using electro catalysis in lab conditions.

[Various Cycles of Environment](#)

1. The carbon cycle has how many parts?

- a) 2
- b) 3
- c) 1
- d) 4

[View Answer](#)

Answer: a

Explanation: The carbon cycle naturally has 2 parts, the terrestrial (movement of carbon through terrestrial ecosystems) and the aquatic (which is related to carbon movements through marine ecosystems).

2. The carbon cycle is based on what?

- a) CO

- b) CO₂
- c) C₆H₁₂O₆
- d) CO₃

[View Answer](#)

Answer: b

Explanation: This cycle is based on movement of CO₂ in the ecosystem. It is found in gaseous form in air and dissolved form in water.

3. In Aquatic ecosystems, carbon is stored in:

- a) Marine Plants
- b) Marine animals
- c) Rocks and sediments
- d) Sea water

[View Answer](#)

Answer: c

Explanation: CO₂ is stored in rocks and sediments in aquatic ecosystems. These are released into the atmosphere by weathering of the rocks.

4. How many different forms of precipitation are there?

- a) 4
- b) 5
- c) 6
- d) 7

[View Answer](#)

Answer: c

Explanation: The different forms of precipitation are rain (water drops with diameter at least 0.5mm), snow (ice crystals/flakes with an average density of 0.1g/cm³), drizzle (water drops less than 0.5mm), glaze (rain touches ground at 0°C), sleet (frozen raindrops) and hail (pellets or lumps of ice of >8mm size).

5. A nutrient cycle is also called as _____

- a) Atmospheric cycle
- b) Atmospheric recycling
- c) Ecological recycling
- d) Ecological chain

[View Answer](#)

Answer: c

Explanation: A nutrient cycle occurs within ecosystems and it is the movement of organic and inorganic matter between different members of the ecosystem. This is regulated by the food chains that use these for production and release them into the atmosphere on decomposition.

6. Living organisms can use Nitrogen (N₂) as it occurs in the atmosphere.

- a) True

b) False

[View Answer](#)

Answer: b

Explanation: The living organisms cannot use N_2 to synthesise organic compounds. N_2 is converted to NH_3 by nitrogen fixing bacteria and then to nitrate by nitrifying bacteria which can then be used by organisms.

7. The major source of Nitrogen deposition is:

- a) Fertilizers
- b) Deforestation
- c) Factories
- d) Household waste

[View Answer](#)

Answer: a

Explanation: Nitrogen rich fertilizers are often overused. As a result, nitrogen gets into the soil, favouring growth of weeds. It is also washed into waterways, where again it causes a growth of aquatic weeds.

8. Which of the following cycle does not have a gaseous state?

- a) Oxygen
- b) Nitrogen
- c) Carbon
- d) Phosphorous

[View Answer](#)

Answer: d

Explanation: Phosphorous is present as inorganic phosphate PO_4^{3-} . It is released from rocks and sediments. It is absorbed by plants and is incorporated into the nucleic acids.

9. In water cycle, the process can be explained in equation form as Evaporation + _____ = Precipitation

- a) Infiltration
- b) Ground water
- c) Transpiration
- d) Run-off

[View Answer](#)

Answer: d

Explanation: Water cycle has three components – evaporation, run-off and precipitation. Transpiration is included in evaporation. Run-off is that part of the water which is not evaporated.

10. How many steps are involved in the sulphur cycle?

- a) 5
- b) 6
- c) 10
- d) 8

[View Answer](#)

Answer: b

Explanation: The steps are assimilative sulphate reduction, desulphurization, oxidation of hydrogen sulphide, oxidation of elemental sulphur, dissimilative sulphur reduction and dissimilative sulphate reduction.

11. In the marine nitrogen cycle, _____ performs nitrogen fixation.

- a) Cyanobacteria
- b) Nitrobactor
- c) Pseudomonas
- d) Diazotrophs

[View Answer](#)

Answer: a

Explanation: Diazotrophs are used to perform nitrogen fixation in normal nitrogen cycle. Nitrobactor is used for nitrification and Pseudomonas for denitrification.

12. In hydrogen cycle _____ is a sink used.

- a) Ocean
- b) Fossil fuels
- c) Microbial soil uptake
- d) Nitrogen fixation

[View Answer](#)

Answer: c

Explanation: There are mainly 2 sinks used in hydrogen cycle – oxidation by hydroxyl radicals and microbial soil uptake. The rest of the options are sources.

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13. Denitrification in nitrogen cycle happens in _____ conditions.

- a) Aerobic
- b) Humid
- c) Anaerobic
- d) Cold

[View Answer](#)

Answer: c

Explanation: Denitrification refers to the process of reduction of nitrates back to nitrogen gas. Pseudomonas bacteria makes this happen. It uses nitrates in the soil to carry out respiration and consequently, produce nitrogen gas.

14. How many reservoirs are there in the oxygen cycle?

- a) 3
- b) 2
- c) 5
- d) 4

[View Answer](#)

Answer: a

Explanation: The three main reservoirs are the atmosphere (air), biosphere (the global sum of all ecosystems) and Earth's crust.

15. An analogous process for organic nitrogen compounds to desulphurisation in the sulphur cycle is:

- a) Transnitrification
- b) Denitrification
- c) Deamination
- d) Assimilation

[View Answer](#)

Answer: c

Explanation: Deamination is the process of removal of amino group from an organic molecule. The enzymes which catalyse this reaction are deaminases.

[Biodiversity and Ecology](#)

1. Biodiversity can be broadly classified into how many types?

- a) 2
- b) 5
- c) 3
- d) 4

[View Answer](#)

Answer: c

Explanation: The three types are species diversity (number of the different species found in location), Genetic diversity (genetic variations within a species) and Ecological diversity (variations in the ecosystems of regions).

2. Biodiversity is of importance as it offers:

- a) Stability of ecosystems
- b) Stability of atmosphere
- c) Stability of species
- d) Stability of research

[View Answer](#)

Answer: a

Explanation: Biodiversity helps in maintaining ecological stability. The ecosystems have an ability to maintain its original nature even after disturbances occur within it, with the help of biodiversity.

3. The loss in biodiversity is not attributed to:

- a) Explosion in the human population
- b) Transforming earth's surface
- c) Destruction of natural habitats
- d) Use of sustainable products

[View Answer](#)

Answer: d

Explanation: The ever-exploding increase in human population leads to the consumption of resources and

exploitation of the earth's surface. This results in the destruction of natural habitats and ecosystems. The use of sustainable alternatives is a step towards conservation.

4. Biodiversity has an aesthetic value to it.

- a) True
- b) False

[View Answer](#)

Answer: a

Explanation: The natural beauty of the earth has refreshing sights, taste and odours. These add an aesthetic value; wide varieties of colours and fragrance of flowers, taste and colours of fruits, etc.

5. In how many ways does the conservation of biodiversity work?

- a) 5
- b) 2
- c) 3
- d) 4

[View Answer](#)

Answer: b

Explanation: The conservation methods are broadly classified as in-situ conservation (the species are conserved in their natural ecosystems, which are protected) and ex-situ conservation (breeding of new and endangered plants/animals in controlled conditions).

6. Which one of the following is not an in-situ conservation method?

- a) Zoo
- b) National Parks
- c) Biosphere Reserves
- d) Sanctuaries

[View Answer](#)

Answer: a

Explanation: Zoo is a controlled environment where animals are kept. The other 3 options are the natural habitat or areas where the species reside.

7. Which is an advantage of ex-situ conservation?

- a) Cheap method
- b) Conserve large number of species together
- c) Genetic process for breeding/long life
- d) Existence in natural habitat

[View Answer](#)

Answer: c

Explanation: Endangered plants/animals can be provided the conditions required for larger life with captive breeding and genetic techniques for development of the species which are healthy and more productive.

8. The area of National Parks range between:

- a) 0.61 to 7818 kms

- b) 0.04 to 3162 kms
- c) 0.14 to 3612 kms
- d) 0.16 to 8718 kms

[View Answer](#)

Answer: b

Explanation: National Parks are small reserves maintained by the Government for the protection of wildlife and their habitat. 0.61 to 7818 kms is the range for sanctuaries.

9. The activities of cultivation of land, timber harvesting is permitted in:

- a) Sanctuaries
- b) National Parks
- c) Biosphere Reserves
- d) Protected Areas

[View Answer](#)

Answer: a

Explanation: Sanctuaries are the areas where only wildlife is present. So, cultivation, harvesting of timber, etc is permitted only if does not interfere with the project. In all the other 3 options, it is prohibited.

10. Hot spot areas have:

- a) Low density of biodiversity
- b) Only endangered plants
- c) High density of hot springs
- d) High density of biodiversity

[View Answer](#)

Answer: d

Explanation: There are areas with a high density of biodiversity, which are presently the most endangered. There are 16 hot spots in the world and 2 in India: North East Himalayas with 3500 endemic species and the Western Ghats with 1600.