

Volume of 500 bricks without mortar = 500 X 0.001539 Cum.

Volume of bricks without mortar for 1 cum = 0.7695 Cum (m³)

Required amount of wet cement mortar = 1 Cum – Volume of bricks without mortar.

= 1 – 0.7695 = .2305 Cum

Dry volume of a mortar = 0.2305 cum X 1.33 = 0.306565 cum (33% as bulkage of sand)

Volume of cement required = $\frac{1}{5} \times .306 = .06$

6. A layer of dry bricks put below the foundation concrete, in the case of soft soils, is called _____.

A. soling

B. shoring

C. D.P.C.

D. None of these

Ans. A

Sol. A layer of dry bricks put below the foundation concrete, in the case of soft soils, is called brick soling.

7. The indentation provided in the face of the brick is called _____.

A. frog

B. pallet

C. strike

D. None of the these

Ans. A

Sol. The indentation provided in the face of the brick is called frog. It provides shear joints with mortar and also consist of trader name on it.

8. The pointing which is extensively used in brick work and stone masonry face work, is:

A. flush pointing

B. struck pointing

C. V-grooved pointing

D. tuck pointing

Ans. A

Sol. Flush pointing is when mortar is pressed hard in the raked joints, and finished off flush with the edge of masonry units. The edges are then neatly trimmed with a trowel and straight edge. This type of pointing is extensively used in face work.

9. The artificial stone that is prepared by immersing granite pieces in sodium silicate solution.

A. Concrete stone

B. Ramson stone

C. Garlic stone

D. Victoria stone

Ans. D

Sol. Victoria stone core granite pieces with surface hardened by peeping it immersed in sodium/soda silicate for two months.

10. The tool used to level a stone surface is

A. Drag

B. Punch

C. Gad

D. Jumper

Ans. A

Sol. Drag – It is employed to level a stone surface

Punch – It is used to dress the stone roughly

Gad – It is used for splitting of stones

Jumper – These are used for boring holes

11. Consider the following statements:

1) Soil containing more than 30% of calcium hydroxide is used for manufacture of sand lime brick.

2) Carbon brick is made from crushed coke bonded with tar.

Which of these statements is/are correct?

A. 1 only

B. 2 only

C. Both 1 and 2

D. Neither 1 nor 2

Ans. B

Sol. Correct statement is: Carbon brick is made from crushed coke bonded with tar. Other statement is wrong.

12. In the composition of good bricks, the total content of silt and clay, by weight, should not be less than:-

A. 20%

B. 30%

C. 50%

D. 75%

Ans. C

Sol. The total content of silt and clay, by weight should not be less than 50% in the good brick.

13. In the manufacture of bricks tempering is the process in which :

A. clay is brought to a proper degree of hardness and it is made fit for the next operation of moulding

B. clay is made loose and any ingredient to be added to it, is spread out at its top.

C. clay is exposed to atmosphere for softening or mellowing

D. clay is grinded with water

Ans. A

Sol. Tempering is the process in which clay is brought to a proper degree of hardness and it is made fit for the next operation of moulding. It takes place after Blending and Weathering. It is usually done in a Pug mill.

Blending is the process in which clay is made loose and any ingredient to be added to it is spread out at its top. Weathering is the process in which clay is exposed to atmosphere for softening or mellowing.

14. Hollow bricks are generally used with the purpose of _____.

A. reducing the cost of construction

B. providing insulation against heat

C. increasing the bearing area

D. ornamental look

Ans. B

Sol. The air present in the hollow area of these bricks make them **thermal** insulators. They keep the interiors cool in summer and warm in winter especially the 'clay hollow bricks'. They also provide more sound insulation as compared to solid bricks.

15. Which of the following is a water reducing admixture?

- A. Calcium lignosulphonate
- B. Vinsol resin
- C. Berium chloride
- D. Fly ash

Ans. A

Sol. A substance which either increases workability of freshly mixed mortar or concrete without increasing water-cement ratio or maintains workability at reduced water cement ratio is known as water reducing admixture. Here, Calcium lignosulphonate is a water reducing admixture.

16. Efflorescence in bricks causes due to _____.

- A. excessive burning of bricks
- B. high content of silt in brick clay
- C. high porosity of the bricks
- D. present of soluble salt in parent clay

Ans. D

Sol. Efflorescence is caused by soluble alkali salts in parent clay, the salts will dissolve in water applied to the structure and migrate back into it.

17. The stone whose crushing strength is maximum, is:

- A. granite
- B. chalk
- C. state
- D. marble

Ans. A

Sol. Granite is an igneous rock and hence posses high crushing strength. Chalk has the lowest crushing strength of the four.

18. Which of the following cements is suitable for use in urgent repairs of existing massive concrete structures such as large dams?

- A. Ordinary Portland cement
- B. Low heat cement
- C. Rapid hardening cement
- D. Sulphate resisting cement

Ans. B

Sol. In massive concrete structures, the heat of hydration plays an important part. The high heat of hydration will create cracks in the structure, hence we can use either:

- 1- Low heat cement
- 2- Cement blended with flash/slag.
- 3- Cement with low C₃A content preferably mixed with flash/slag.

But for urgent repair always rapid hardening is preferred.

19. Which of the following compounds of Portland cement reacts immediately with the water and set early?

- A. Dicalcium silicate
- B. Tetracalcium aluminoferrite
- C. Tricalcium aluminate
- D. Tricalcium silicate

Ans. C

Sol. Tricalcium Aluminate reacts most strongly with water of all the calcium aluminates. Its hydration leads to the phenomenon of "flash set" (instantaneous set), and a large amount of heat is generated. To avoid this flash set gypsum is added to maintain required setting times.

20. Which of the following property of ordinary Portland cement is improved by the pozzolana?
- A. Bleeding
 - B. Heat of hydration
 - C. Permeability
 - D. All are correct.

Ans. D

Sol. Pozzolanic materials are fine particles ie. Fly ash, slag etc. Which fill the voids inside the mortar as result in reduce the permeability, Bleeding.

Pozzolana materials reduces the percentage of bogue's compound which in turns reduce the heat of hydration.

21. Quick setting cement is produced by adding _____.
- A. less amount of gypsum in very fine powdered form
 - B. more amount of gypsum in very fine powdered form
 - C. aluminium sulphate in very fine powdered form
 - D. pozzolana in very fine powdered form

Ans. C

Sol. In Quick Setting cement(much finer than OPC), **gypsum content is reduced** to get the quick setting property. Also, small amount of aluminium sulphate is added. Since gypsum is invariably added to almost all types of cement hence for this problem, the more prominent answer would be addition of aluminium sulphate.

22. Gypsum used in cement manufacturing acts as
- A. accelerator
 - B. air entraining agent
 - C. plasticizer
 - D. retarder

Ans. D

Sol. gypsum is called the retarding agent of cement which is mainly used for regulating the setting time of cement & is an indispensable component.

Without gypsum, cement clinker can condense immediately by mixing with water & release heat. It generate a calcium aluminate hydrate, (a clotting agent) which will destroy the normal use of cement.

23. The initial setting time of Ordinary Portland Cement (OPC) is
- A. 10 min.
 - B. 30 min.
 - C. 45 min.
 - D. 60 min.

Ans. B

Sol. The time at which cement paste loses its plasticity is called initial setting time. The initial setting time for different types of cements is as follows: For OPC (Ordinary Portland Cement) 33 Grade as per IS 269:1989 is **30 minutes**.

24. Pick up the correct statement from the following

- A. An increase in water content must be accompanied by an increase in cement content
- B. Angular and rough aggregates reduce the workability of the concrete
- C. Large size aggregates increase the workability due to lesser surface area
- D. All option are correct

Ans. D

Sol. All option are correct which are given above.

25. Inert material of a cement concrete mix is _____.

- A. water
- B. cement
- C. aggregate
- D. none of these

Ans. C

Sol. Cements may be used alone (i.e., "neat," as grouting materials), but the normal use is in mortar and concrete in which the cement is mixed with inert material known as aggregate.

26. Pick up the correct statement from the following

- A. Water enables chemical reaction to take place with cement
- B. Water lubricates the mixture of gravel, sand and cement
- C. Only a small quantity of water is required for hydration of cement
- D. All option are correct

Ans. D

Sol. Water reacts with cement and yields C-S-H

Gel which is responsible for its cementing Properties.

Water works as a lubricant in concrete, Provides workability to it. Cement in total requires 23% water by Weight for its complete hydration but about 15% of the water is entrapped in the voids Of the cement particles hence total water is Required for complete hydration of cement is approx. 38%.

27. Which one of the following cement is best for the marine works?

- A. Blast furnace slag cement
- B. High alumina cement
- C. Low heat Portland cement
- D. Rapid hardening cement

Ans. A

Sol. Blast furnace slag cement is best for the marine work.

28. In the process of hydration of OPC, to complete all chemical reaction, the water requirement (expressed as the percentage of cement) is _____.

- A. 5 to 8%
- B. 8 to 16%
- C. 20 to 25%
- D. 35 to 45%

Ans. D

Sol. Cement in total requires 23% water by weight for its complete hydration or complete all chemical reactions.

About 15% of the water is entrapped in the voids of the cement particles.

so total water requirement = 23 + 15 = 38%

29. Gypsum used in cement manufacturing acts as
- A. accelerator
 - B. air entraining agent
 - C. plasticizer
 - D. retarder

Ans. D

Sol. gypsum is called the retarding agent of cement which is mainly used for regulating the setting time of cement & is an indispensable component.

Without gypsum, cement clinker can condense immediately by mixing with water & release heat. It generate a calcium aluminate hydrate, (a clotting agent) which will destroy the normal use of cement.

30. The maximum amount of dust which may be permitted in aggregates is
- A. 5% of the total aggregates for low workability with a coarse grading
 - B. 10% of the total aggregates for low workability with a fine grading
 - C. 20% of the total aggregates for a mix having high workability with fine grading
 - D. All options are correct

Ans. D

Sol. 5%, 10%, 20% are required for low, medium and high workability cement.

31. What is the ratio (approximate) of 7 days and 28 days strength of cement concrete?
- A. 0.45
 - B. 0.65
 - C. 0.95
 - D. 1.15

Ans. B

Sol. Compressive strength of concrete at various ages.

Age strength percent

3 days 40%

7 days 65%

21 days 90%

28 days 99%

So the ratio of strength at 7 days to 28 days = $(65\% / 99\%) = 0.65$ (approximately)

32. Which of the below is not property of ferro cement?
- A. Impervious nature
 - B. Capacity to resist shock
 - C. No need of formwork
 - D. Strength per unit mass is low

Ans. D

Sol. 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.

33. Rapid hardening cement attains early strength due to _____.
- A. larger proportion of lime grounded finer than normal cement
 - B. lesser proportion of lime grounded coarser than normal cement
 - C. lesser proportion of lime grounded finer than normal cement
 - D. larger proportion of lime grounded coarser than normal cement

Ans. A

Sol. Rapid hardening cement attains early strength due to larger proportion of lime grounded finer than normal cement. Finer grinding of cements leads to increase in heat of evolution, and attains the early strength.

34. Water-cement ratio is:

- A. The ratio of volume of water mixed in concrete to volume of cement used.
- B. The ratio of weight of water mixed in concrete to weight of cement used.
- C. The ratio of volume of water mixed in concrete to weight of cement used.
- D. The ratio of mass of water mixed in concrete to weight of cement used.

Ans. B

Sol. The **water-cement ratio** is the **ratio** of the weight of **water** to the weight of **cement** used in a **concrete mix**. A lower **ratio** leads to higher strength and durability but may make the mix difficult to work with and form. Workability can be resolved with the use of plasticizers or super-plasticizers.

35. Inert material of a cement concrete mix is _____.

- A. water
- B. cement
- C. aggregate
- D. none of these

Ans. C

Sol. Cements may be used alone (i.e., "neat," as grouting materials), but the normal use is in mortar and concrete in which the cement is mixed with inert material known as aggregate.

36. 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

Ans. B

Sol. Mixing Concrete: Sand, Cement, Gravel, and Water. When mixing by hand, it is essential to thoroughly mix the concrete to get consistency throughout the mixture. Water cement ratio of 0.5-0.6 are to be use when mixing concrete by hand.

37. Curing_____.

- A. reduces the shrinkage of concrete
- B. preserves the properties of concrete
- C. prevents the loss of water by evaporation
- D. All options are correct

Ans. D

Sol. All the things are related to currying of cement.

38. Concrete containing

- A. silicious aggregates, has higher co-efficient of expansion
- B. igneous aggregates, has intermediate co-efficient of expansion
- C. lime stones has lowest co-efficient of expansion
- D. All option are correct

Ans. D

Sol. Thermal expansion of concrete is greatly influenced by the type of aggregate because of the large differences in the thermal properties of various types of aggregates, and because the aggregate constitutes from 70 to over 80 percent of the total solid. Siliceous aggregates such as chert, Quartzite have higher thermal coefficients of expansion while the igneous aggregate like granite shows intermediate coefficient of expansion and Limestone has lowest coefficient of expansion.

39. The risk of segregation is more for
- A. wetter mix
 - B. larger proportion of maximum size aggregate
 - C. coarser grinding
 - D. All option are correct

Ans. D

Sol. The wetter the concrete more chances of segregation of cement past from the aggregates. A badly proportioned mix, where sufficient Matrix is not there to bond and contain the Aggregate cause aggregates to settle down.

40. The strength and quality of concrete depends on _____.
- A. aggregate shape
 - B. aggregate grading
 - C. surface area of the aggregate
 - D. All options are correct

Ans. D

Sol. Concrete strength is affected by many factors, such as quality of raw materials, water/cement ratio, coarse/fine aggregate ratio, age of concrete, compaction of concrete, temperature, relative humidity and curing of concrete

41. Approximate value of shrinkage strain in concrete is _____.
- A. 0.03
 - B. 0.003
 - C. 0.0003
 - D. 0.00003

Ans. C

Sol. As per clause 6.2.4.1 of IS 456:2000, In the absence of test data, the approximate value of the total shrinkage strain for design may be taken as 0.0003.

42. The compressive strength of 100 mm cube as compared to 150 mm cube is always _____.
- A. less
 - B. more
 - C. equal
 - D. None of these

Ans. B

Sol. The smaller the size of cube makes it more close to its parent geometry.

43. The approximate volume of cement required to prepare 100 m³ of 1:2:4 concrete is _____.
- A. 16 m³
 - B. 32 m³
 - C. 25 m³
 - D. 21 m³

Ans. D

Sol. 1 m^3 of wet concrete required 1.5 m^3 of dry concrete.

So for each 1 m^3 the volume of cement = $(1.5 \times 1)/(1+2+4) = 0.2142$

So for 100 m^3 , $0.2142 \times 100 = 21.42 \text{ m}^3$

44. Proper proportioning of concrete, ensures_____.

- A. desired strength and workability
- B. desired durability
- C. water tightness of the structure
- D. All options are correct

Ans. D

Sol. Proper proportioning of concrete for strength, durability, workability and water tightness of the structure.

45. As per IS 456 : 2000, for sea water, grade of concrete lesser than which of the following shall not be used in reinforced concrete:

- A. M20
- B. M30
- C. M35
- D. M40

Ans. B

Sol. For sea water grade of concrete lower than M30 shall not be used in reinforced concrete.

46. The main purpose of a retarder in concrete is

- A. to increase the initial setting time of cement in concrete
- B. to decrease the initial setting time of cement in concrete
- C. to make the concrete more water tight
- D. to improve the workability of concrete

Ans. A

Sol. Retarder is used to increase the setting time of concrete.

47. Bleeding of concrete leads to which of the following ?

- 1. Drying up to concrete surface.
- 2. Formation of pores inside
- 3. Segregation of aggregate
- 4. decrease in strength

Select the correct answer using the codes given below:

- A. 1 only
- B. 1 and 2
- C. 1 and 3
- D. 2 and 4

Ans. D

Sol. Bleeding of concrete causes the formation of pores and a decrease in the strength of concrete.

48. Which one of the following types of concrete is most suitable in extreme cold climates ?

- A. air-entrained concrete
- B. ready mix concrete
- C. vacuum concrete
- D. coarse concrete

Ans. A

Sol. Air-entrained Concrete has high durability and a high resistance to freezing and thawing action of water as encountered in cold climates.

49. Polymer concrete is most suitable for
- A. Sewage disposal works
 - B. Mass concreting works
 - C. Insulating exterior walls of an air-conditioned building
 - D. Road repair works

Ans. D

- Sol. Polymer concrete is mainly used for
- 1) Repairing works of concrete projects like Bridges, Roads etc.
 - 2) Corrosion resisting grounds

50. A cement concrete road is 1000 m long, 8 m wide and 15 cm thick over the sub-base of 10 cm thick gravel. The cubic content of concrete (1:2:4) for the road specified in is ____.
- A. 300 m³
 - B. 600 m³
 - C. 900 m³
 - D. 1200 m³

Ans. D

- Sol. the sub-base of 10 cm thick gravel bed is not required the concrete so calculation only done for the length, width, and thickness of concrete pavement.

$$V=1000 \times 8 \times 0.15=1200\text{m}^3$$

51. The minimum number of annular rings to be seen in every 2.54 cm in the radial direction from the core for timber to be classified as 'Dense' is
- A. 10
 - B. 20
 - C. 25
 - D. 30

Ans. A

52. Consider the following statements:
Fibre saturation point in wood is reached when

- 1) Free water is removed.
- 2) Cell water is removed.
- 3) Shrinkage of wood is rapid.
- 4) Strength gain is rapid.

Which of these statements are correct?

- A. 1, 2 and 3
- B. 1 and 2 only
- C. 2 and 4 only
- D. 1, 3 and 4

Ans. D

- Sol. Fibre saturation point is the moisture content in % of the timber when the cell walls are saturated with water and the cells cavity contains no water. Any drying below the fiber saturation point results in shrinkage. Sudden and fast drying of timber results in the removal of water from cell walls and the consequent shrinkage causes cracking.

53. Which IS code is used for classification of timber for seasoning purposes?

A. IS : 4970-1973

B. IS : 1708-1969

C. IS : 1141-1958

D. IS : 399-1963

Ans. C

Sol. IS 1141-1958 → Seasoning of timber

54. The solution of salts from the soil absorbed by the trees which becomes a viscous solution due to loss of moisture and action of carbon dioxide is known as:

A. pith

B. cambium

C. bark

D. sap

Ans. D

Sol. Sap is between cambium layer and heartwood, sap contains moisture.

55. Which of the following tests are used for testing of tiles?

1) breaking strength test

2) impact test

3) transverse strength test

4) water absorption test

A. 1 and 3 only

B. 1, 2 and 3 only

C. 1, 2 and 4 only

D. 1, 2, 3 and 4

Ans. D

Sol. Breaking strength (IS: 1464)

Impact test (IS: 1478)

Transverse strength- It consists of applying the load along the centre lines and right angles to the length of the tile supported on the rounded edges of wood bears. Six tiles are tested and the average breaking load should not be less than specified.

Water absorption (IS:2690)

56. Which one of the following is the correct statement?

The strength of timber

A. is maximum in a direction parallel to the grain

B. is maximum in a direction perpendicular to the grain

C. is maximum in direction 45° to the grain

D. remain same in all directions

Ans. A

57. Tungsten steel is normally used in the manufacture of:

A. Drilling machine

B. Heavy earth equipments

C. Heavy mining Equipments

D. Delicate instruments.

Ans. A

58. The guidelines for preparation for mortar is given in which code?

A. IS 4455

B. IS 2250-1981

C. IS 3350-1981

D. IS 5567

Ans. B

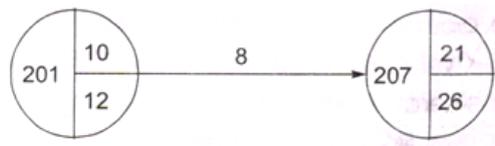
Sol. For mortar, IS 2250- 1981 is used.

In time cost study, the durations of activities on critical path can be reduced by

- (i) deploying more resources for the early completion of such activities
- (ii) relaxing the technical specifications for such activities i.e. choice of technology becomes concurrent with duration reduction.

In critical path identification for PERT network, the critical events may have positive/zero/negative slack depending upon the project scheduled completion time. If there are more than one critical path of a PERT network, then find the variance along each critical path and select the greatest value. Thus the process is affected by probabilistic activity durations.

69. For an activity 201-207 in an AOA network, the EET values, LET values and activity duration are shown in the figure given below. Between free float, interference float and independent float, which one of the following is the correct sequence in the decreasing magnitude order?



- A. Free float-Interference float-Independent float
- B. Free float-Independent float-Interference float
- C. Interference float-Free float-Independent float
- D. Interference float-Independent float-Free float

Ans. C

Sol. Free Float = $(EET)_{207} - (EET)_{206} - t$

$$= 21 - 10 - 8 = 3$$

Independent Float

$$= (EET)_{207} - (EET)_{206} - t$$

$$= 21 - 12 - 8 = 1$$

Interference Float

$$= (EET)_{207} - (EET)_{206} - t$$

$$= 26 - 21 = 5$$

So, the correct sequence will be:

Interference float – Free float – Independent float.

70. Pick up the **incorrect** statement :

- A. CPM is an activity oriented network
- B. PERT is event oriented
- C. Slack for any event may be positive, zero or negative
- D. Float is always negative

Ans. D

Sol. A float is the range within which start or finish time of an activity may fluctuate without affecting project completion time.

Floats cannot be negative.

71. The area under β -distribution curve is divided into two equal parts by

- A. Most likely time
- B. Expected time
- C. Optimistic time
- D. Pessimistic time

Ans. B

Sol. Expected time is the most probable time of completion of activity and hence has a probability 50%. Therefore, it divide the area under β - distribution curve into 2 equal halves.

72. Latest start of an activity is always

- A. greater than or equal to latest event times of all the preceding nodes
- B. less than or equal to earliest event times of all the preceding nodes
- C. equal to the latest event times of all the preceding nodes
- D. equal to the earliest event time of all the preceding nodes

Ans. A

Sol. The succeeding activity can only start when all of the proceeding activities have finished. Hence the latest start time is always greater or equal to latest event time of preceding nodes.

73. **Assertion (A):** Whereas crashing considers only the negative cost slope aspects, resource allocation may need consideration of the positive cost slope aspect also.

Reason (R): Implementability is based on manageability and affordability of resource histograms.

- A. both A and R are true and R is the correct explanation of A
- B. both A and R are true but R is not a correct explanation of A
- C. A is true but R is false
- D. A is false but R is true

Ans. B

74. In construction project, the cost-slope of an activity is an indication of

- A. extra-time needed
- B. extra cost needed
- C. reducing of duration of critical activity
- D. crashing of an activity

Ans. B

Sol. Crash cost is an indication of the extra cost which is needed to ensure an early finish of a project. The extra resources which are to be applied in order to complete the project will lead to an additional cost.

75. Consider the following statements regarding resource allocation / adjustment:

- 1) Economical utilization of resources.
- 2) Adjustment of resources to have leave variation in resource histogram.
- 3) Gradual increase in resources.
- 4) Activities are so rescheduled that maximum projected need for any resource does not

Which of these statements are correct?

- A. 1 and 2
B. 2, 3 and 4
C. 3 and 5
D. 1, 2, 3, 4 and 5

Ans. C

80. Which of the following is estimated by using a bar bending schedule?

- A. Brick work
B. Concrete work
C. Earthwork
D. Steel work

Ans. D

Sol. Bar bending schedule provides details of reinforcement cutting and bending length.

Bar bending schedule is also used for estimation of steel work.

Advantages of bar bending schedule is when used along with reinforcement detailed drawing improves the quality of construction.

81. Calculate the volume of earth work for an embankment of length L and width B. The mean depth of the embankment is D and side slope is S : 1) Using mid sectional area method.

- A. $B \times D \times L$
B. $(B + B + sD) \times D \times L$
C. $(B + B + sD) \times D \times L/2$
D. $(BD + sD^2) \times L$

Ans. D

Sol. Volume of embankment using mid sectional area method,

$V = \text{area of earthwork at midsection} \times \text{length of the embankment}$

Area of earthwork = $(B + sD) \times D$

= $BD + sD^2$

» $V = (BD + sD^2) \times L$.

82. Calculate the capitalized value of a building having annual rent of Rs. 20,000 and highest rate of interest is 5%.

- A. 1000
B. 21000
C. 220000
D. 400000

Ans. D

Sol. Capitalized value of a building,

Capitalized value = annual income \times year's purchase

Year's purchase = $100 / \text{rate of interest}$

= $100 / 5 = 20$

So capitalized value = 20000×20

= 400000

83. For estimation of painting area of corrugated steel sheets, percentage increase in area above the plain area is _____.

- A. 10%
B. 14%
C. 20%
D. 25%

Ans. B

Sol. The %increase over plain area for estimation of painting area is 14% for the corrugated steel sheets.

Term	Description
P. Scrap Value	1. An amount left at the end of the year after deducting all usual outgoings.
Q. Net Income	2. a building is to be dismantled after the period of its utility is over, some amount can be fetched from the sale of old materials
R. Salvage Value	3. property after being discarded at the end of the utility period is sold without being broken into pieces,
s. Outgoings	4. expenses which are incurred on a building so that it may give back revenue.

A. P-2 ,Q-1 ,R-3 ,S-4

B. P-2, Q-1 ,R-4 ,S-3

C. P-1 ,Q-2 ,R-3 ,S-4

D. P-1 ,Q-2 ,R-4 ,S-3

Ans. A

Sol. → Net income: An amount left at the end of the year after deducting all usual outgoings.

→ Outgoings: These are expenses which are incurred on a building so that it may give back revenue

→ Scrap Value: If a building is to be dismantled after the period of its utility is over, some amount can be fetched from the sale of old materials. The amount is known as Scrap Value of a building.

→ Salvage Value: If property after being discarded at the end of the utility period is sold without being broken into pieces, that amount of building is known as its Salvage Value.

88. What will be the estimated cost of a building having plinth area 150 sqm at the prevailing plinth area rate of Rs 900 per sqm?

A. Rs 115,000

B. Rs 135,000

C. Rs 150, 000

D. Rs 175,000

Ans. B

Sol. Estimated cost of building = Plinth area × Plinth area rate
= 150 × 900 = Rs 135000

89. The out turn of random rubble stone masonry in lime or cement mortar is

A. 0.40 cum

B. 0.80 cum

C. 1 cum

D. 1.25 cum

Ans. C

Sol. Out turn of random rubble stone masonry in lime or cement mortar = 1 cum

90. The years purchase for the prevailing interest rate of 8% is

A. 6.25

B. 12.5

C. 25

D. 50

Ans. B

Sol. Years purchase = $\frac{100}{i} = \frac{100}{8} = 12.5$

91. The process of applying a layer of dry brick or stone over a soft soil and below the concrete foundation is known as

- A. Trenching
- B. Soling
- C. Hauling
- D. Surface dressing

Ans. B

Sol. When the soil layer is soft, a layer of dry brick or stone is laid below foundation. The process of applying the layer is known as soling.

92. The deduction for a lintel having thickness 20 cm placed over a window having clear span 45 m is

(The thickness of the wall is 30 cm)

- A. 2.05
- B. 2.39
- C. 2.45
- D. 2.72

Ans. D

Sol. Clear span (s) = 45 m

Thickness of lintel (t) = 20 cm = 0.2 m

Thickness of wall = 30 cm

Length of lintel (l) = s + 2t = 45 + 2 × 0.20 = 45.40 m

Deduction = l × t × thickness of wall = 45.40 × 0.20 × 0.30 = 2.724 cum

93. The Building Cost Index depends upon which of the following quantities?

- A. Cost of Material
- B. Cost of Labour
- C. Cost of Transport
- D. All of the above

Ans. D

Sol. Building Cost Index indicate the increase or decrease of the cost above the cost at the certain base year. It mainly depends upon cost of material, labour and transportation charges.

94. A unit of equipment costs Rs. 25 Lakh and has a life of 5 years with no slavage value. The average annual cost of this equipment based on straight-line depreciation is

- A. Rs. 5 Lakh
- B. Rs. 10 Lakh
- C. Rs. 15 Lakh
- D. Rs. 20 Lakh

Ans. A

Sol. The average annual cost as per straight-line depreciation is given as

$$D = \frac{C_i - C_s}{n} = \frac{25 - 0}{5}$$

5 lakhs

95. A document containing detailed description of all the items of work (but their quantities are not mentioned) together with their current rates is called _____.

- A. tender
- B. schedule of rates
- C. analysis of rate
- D. abstract estimate

Ans. B

Sol. containing detailed description of all the items with their current rates
 For ex. Cement, sand, labour cost, & in a contract setting out of the staff
 & plant hire rates with current.

96. Cost of Owning an equipment would include
- A. Cost of depreciation, maintenance and repair, and fuel
 - B. Cost of investment, wages of the crew and fuel
 - C. Cost of fuel, lubricating oil investment depreciation
 - D. Cost of investment, major repairs and depreciation

Ans. D

97. Sinking fund method is useful in
- A. Depreciation
 - B. Obsolescence
 - C. Liquidation
 - D. Scrap value

Ans. A

98. Which of the following is the most correct estimate?
- A. Plinth area estimate
 - B. Cube rate estimate
 - C. Detailed estimate
 - D. Building cost index estimate

Ans. C

Sol. detailed estimate is the most accurate estimate after that plinth area estimate is good estimate.

99. If 'i' is the rate of interest expressed in decimal and 'n' is the number of years, then coefficient of annual sinking fund, I_e is

- A. $I_e = \frac{[(1+i)^n - 1]}{(1+i) - 1}$
- B. $I_e = \frac{i}{(1+i)^n - 1}$
- C. $I_e = \frac{i}{(1+i)^n + 1}$
- D. None of these

Ans. B

Sol. the amount of annual instalment of the sinking fund may be found out by the formula

$$I = Si / [(1+i)^n - 1]$$

Where, S = total no. of sinking fund

i = rate of interest in decimal & n = no. of years required

100. The initial cost of a obstruction equipment is Rs. 20,00,000 having a useful life of 10 years. The estimated salvage value of the equipment at the end of useful life is Rs. 2,00,000. The book value (in Rs.) of the equipment at the end of 2nd year using double-deceiving balance method is:
- A. 16,56,200
 - B. 16,40,000
 - C. 14,56,600
 - D. 13,44,800

Ans. D

Sol. Amount to be depreciated
 = 20,00,000 - 2,00,000

$$= 18,00,000$$

Annual depreciation for double decline method

$$= 2 \times \frac{1800000}{10 \times 2000000} = 0.18$$

$$\text{Depreciation for 1}^{\text{st}} \text{ year} = 2000000 \times 0.18$$

$$= 3,60,000$$

Book value at the end of

$$1^{\text{st}} \text{ year} = 2000000 - 360000 = 1640000$$

Depreciation for

$$2^{\text{nd}} \text{ year} = 1640000 \times 0.18 = 295200$$

$$\text{Book value at the end of 2nd year} = 1344800$$
