Q1. Plaster of Paris is obtained by calcining
(a) Bauxite
(b) Gypsum
(c) Kankar
(d) Limestone

Q2. A stone is rejected if it absorbs water more than
(a) 5%
(b) 10%
(c) 20%
(d) 25%

Q3. Rocks having alumina or clay as their major constituent are called
(a) Siliceous rocks
(b) Argillaceous rocks
(c) Sedimentary rocks
(d) None of the above

Q4. Crushing strength of a good building stone should be more than:
(a) 50 MPa
(b) 150 MPa
(c) 100 MPa
(d) 200 MPa

Q5. Granite is a rock that is by nature:
(a) Metamorphic
(b) Volcanic
(c) Plutonic
(d) Sedimentary

Q6. Quartzite and marble are by nature:
(a) Volcanic
(b) Plutonic
(c) Sedimentary
(d) Metamorphic

Q7. The process of providing smooth face and regular face to stone is known as
(a) Quarrying
(b) Seasoning
(c) Pitching
(d) Dressing

Q8. The subclassification of sedimentary rocks
(a) Volcanic and plutonic
(b) Mechanical, chemical, organic
(c) Intrusive, extrusive
(d) Stratified, unstratified

Q9. If the rocks are formed due to alteration of original structure under heat and excessive pressure, then they are known as _____.
(a) Igneous
(b) Sedimentary
(c) Volcanic
(d) Metamorphic

Q10. Which of the following could be the specific gravity of stone to be used as a building material?
(a) 2.7
(b) 1.7
(c) 1.9
(d) 1.3

Q11. Which of the following is the main composition of granite?
(a) Quartz, feldspar and mica
(b) Quartz and lime
(c) Quartz and silica
(d) Silica, lime and alumina

Q12. The process of production of natural stone is known is _____.
(a) Dressing
(b) Quarrying
(c) Crushing
(d) Seasoning

Q13. Which of the following possess more ability to resist fire?
(a) Compact sandstone
(b) Quartz
(c) Red marble
(d) Shale

Q14. Quartzite is a _____.
(a) Sandy rock
(b) Siliceous rock
(c) Organic rock
(d) Calcareous rock

Q15. Solidification of molten magma at the surface of the earth result in the formation of
(a) Sedimentary rock
(b) Basalt and traps
(c) Granite
(d) Metamorphic rocks

Q16. The process of mixing clay, water and other ingredients to make bricks is known as-
(a) Tempering

(b) Kneading
(c) Pugging
(d) Moulding

Q17. Excess of silica in the clay
(a) makes the bricks brittle and weak
(b) makes the bricks crack and warp on drying
(c) changes the colour of the bricks from red to yellow
(d) improves the impermeability and durability of the brick

Q18. The minimum compressive strength of 2nd class bricks should be _____.
(a) 70 kg/cm²
(b) 90 kg/cm²
(c) 100 kg/cm²
(d) 120 kg/cm²

Q19. Which of the following defect appears due to presence of alkalies in the bricks?
(a) bloating
(b) Black core
(c) Cracks
(d) Efflorescence

Q20. What is the thickness (cm) of a two bricks wall made up to standard modular brick?
(a) 9
(b) 10
(c) 20
(d) 40

Q21. The expected out turn (cubic meter) of reinforced brickwork per mason per day is _____.
(a) 1
(b) 3
(c) 5
(d) 10

Q22. Efflorescence in bricks causes due to
(a) Excessive burning of bricks
(b) high content of silt in crick clay
(c) high porosity of the bricks
(d) presence of soluble salt in parent clay

Q23. The indentation provide in the face of the brick is called _____.
(a) Frog
(b) Pallet
(c) Strike
(d) None of these

Q24. Which constituent of good brick earth added in small quantity during the manufacturing of bricks, to give yellow tint to bricks and decrease shrinkage?
(a) Oxide of iron
(b) Silica
(c) Magnesia
(d) Alumina

Q25. Which one of the following is not mechanical property of bricks?
(a) Modulus of rupture
(b) Texture
(c) Tensile strength
(d) Fire resistance

Q26. The full brick which is laid with its length parallel to face the wall is called _____.
(a) Course
(b) Stretcher
(c) Header
(d) Facing

Q27. What should be the weight of a standard brick?
(a) 2 kg
(b) 1.5 kg
(c) 3 kg
(d) 1 kg

Q28. In the process of brick manufacturing, the pug mill is used in which of the following operation?
(a) Blending
(b) Burning
(c) Tempering
(d) Weathering

Q29. Which of the following is good for making the bricks?
(a) Silted soil
(b) Weathered clay
(c) Soil
(d) None of these

Q30. Refractory brick resists
(a) high temperature
(b) chemical reaction
(c) dampness
(d) none of these
Q31. As per IS specifications, what should be the maximum final setting time for ordinary Portland cement?
(a) 30 minutes

(b) 10 hours
(c) 1 hours
(d)6 hours

Q32. Air permeability test of cement is conducted to find the
(a) Unsoundness
(b) Ignition loss
(c) Specific gravity
(d) Fineness

Q33. Which IS code gives specifications about cement plaster?
(a) IS 1500
(b) IS 1221
(c) IS 1400
(d) IS 1661

Q34. 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%

Q35. Initial setting time of rapid-hardening Portland cement is nearly:
(a) Half a minute
(b) 5 minutes
(c) 30 minutes
(d) 45 minutes

Q36. The calcination of pure lime result in:
(a) Quick lime
(b) Hydraulic lime
(c) Hydrated lime
(d) Fat lime

Q37. The process of adding water to lime to convert it into a hydrated lime is termed as:
(a) watering
(b) Banking
(c) Hydration
(d) Slaking

Q38. Which one of the following cement is best for the marine water?
(a) Blast furnace slag cement
(b) High alumina cement
(c) Low heat Portland cement
(d)Rapid hardening cement

Q39. Which of the following shows the correct decreasing order of rate of hydration of Portland cement compounds?
(a) $C_3A > C_4AF > C_3S > C_2S$
(b) $C_3A > C_4AF > C_2S > C_3S$
(c) $C_3A > C_3S > C_2S > C_4AF$
(d) $C_4AF > C_3A > C_3S > C_2S$

Q40. What is the temperature range in cement kiln?
(a) 800 to 1050°C
(b) 1050 to 1300°C
(c) 1300 to 1500°C
(d) 1800 to 2100°C

Q41. The fineness modulus of fine aggregate is:
(a) 2.2 to 3.2
(b) 3.5 to 5.0
(c) 5.0 to 7.0
(d) 6.0 to 8.5

Q42. Los Angeles machine is used to test the aggregate for
(a) Crushing strength
(b) Impact value
(c) Abrasion resistance
(d) Water absorption

Q43. Bulking of sand is maximum if the percentage of moisture content is of the order of:
(a) 5
(b) 8
(c) 10
(d) 15

Q44. An aggregate is said to be flaky if its least dimension is less than:
(a) $\frac{2}{3}$ mean dimension
(b) $\frac{3}{4}$ mean dimension
(c) $\frac{3}{5}$ mean dimension
(d) $\frac{5}{8}$ mean dimension

Q45. An aggregate is known as cyclopean aggregate if its size is more than:
(a) 75 mm
(b) 4.75 mm
(c) 30 mm
(d) 60 mm

Q46. Bulking is:
(a) increase in volume of sand due to moisture which keeps sand particles apart.
(b) Increase in density of sand due to impurities like clay, organic matter.

(c) Ramming of sand so that it occupies minimum volume.
(d) compacting of sand

Q47. The resistance of an aggregate to the effect of hydration of cement and water is called
(a) impact value
(b) soundness
(c) Crushing strength
(d) Abrasion resistance

Q48. The bulking of sand occurs due to
(a) Air in voids
(b) Moisture in voids
(c) Surface tension
(d) Capillary action

Q49. The resistance of a material to penetrations
(a) Toughness
(b) Hardness
(c) Fatigue
(d) Roughness

Q50. The impact tests are used to determine _____.
(a) Ultimate crushing strength
(b) Toughness
(c) Ductility
(d) Tenacity

solutions

S1. Ans.(b)
Sol. Plaster of Paris is obtained by calcining of Gypsum. It is a crystalline mineral of hydrated calcium sulphate ($Caso_4\ 2H_2O$).

S2. Ans.(b)
Sol. A good building stone should have water absorption between 5-10% and should be rejected if water absorption is more than 10%.

S3. Ans.(b)
Sol. Rocks having alumina or clay as their major constituent are called argillaceous rocks.
Ex. Slates, laterite etc.

S4. Ans.(c)
Sol. →Crushing strength of a good building stone should be more than 100 MPa or 1000 kg/cm² → crushing test is performed to determine crushing strength.

S5. Ans.(c)

Sol. →Granite is a plutonic rock, also known as 'intrusive Igneous rock'.
→ it is hard and durable hence is suitable for building piers.

S6. Ans.(d)
Sol. Quartzite and Marble are metamorphic rocks.

S7. Ans.(d)
Sol. Dressing → Stone dressing is the process of providing proper shape and size to fresh quarried stone.

S8. Ans.(b)
Sol. Sub classification of sedimentary rocks
(1) Mechanical → made from mechanical weathering
(2) Chemical → made from chemical weathering.
(3) Organic rocks.

S9. Ans.(d)
Sol. Metamorphic rocks are formed by the change in character of the original rocks when subjected to great heat and pressure.
Ex.

Rock	Classification	Rock After Metamorphism
Granite	Igneous	Gneiss
Basalt	Igneous	Laterite/schist
Limestone	Sedimentary	Marble
Mudstone	Sedimentary	Slate
Sandstone	Sedimentary	Quartzite
Shale	Sedimentary	Slate

S10. Ans.(a)
Sol. →Specific Gravity of most of natural aggregate lies between 2.5-2.8.
→ Hardness of good building stone should be greater than 17.

S11. Ans.(a)
Sol. Granite is an igneous rock. Main composition of granite is Quartz, feldspar and Mica.

S12. Ans.(b)
Sol. Quarrying → Open portion of natural rock from which stone is obtain by different action known as quarrying.
Quarrying tools → Hammer, wedge pin, Jumper, Crow bar etc.

S13. Ans.(a)
Sol. Compact sandstone having highest fire resistance while marble possess least among.

S14. Ans.(b)
Sol. Quartzite is a siliceous rock formed after metamorphism of sandstone.

S15. Ans.(b)
Sol. The solidification of molten magma, when it reaches the surface of earth result in the formation of basalt and traps. These are igneous rocks.
S16. Ans.(b)
Sol. Kneading → it is the process in which mixing of clay, water and other ingredients is done with the help of pressing, folding & stretching of clay.

S17. Ans.(a)
Sol. If silica is present in excess, then it makes the brick brittle and weak.

S18. Ans.(a)
Sol. The minimum compressive strength of 2nd class bricks should be 70 kg/cm².

S19. Ans.(d)
Sol. Grey or white powder patches appears on the surface of the brick due to presence of alkalies called efflorescence.

S20. Ans.(d)
Sol. The thickness of two brick wall equal to the twice the length of the brick i.e. 40 cm.

S21. Ans.(a)
Sol. The expected out turn of reinforced brickwork per mason per day is 1 m^3.

S22. Ans.(d)
Sol. Efflorescence in bricks causes due to presence of alkalies and soluble salt in parent clay.

S23. Ans.(a)
Sol. Frog → An indentation mark is left over the top of the bricks called frog.
→ it is generally 10-20 mm. deep.

S24. Ans.(c)
Sol. magnesia is added during the manufacturing of brick. It gives yellow tint to brick and prevent shrinkage.

S25. Ans.(b)
Sol. texture is not a mechanical property of bricks while modulus of rupture, tensile strength and fire resistance are the mechanical property of brick.

S26. Ans.(b)
Sol. the full brick which is laid with its length parallel to face the wall is called stretcher.

S27. Ans.(c)
Sol. the weight of a standard brick should be 3kg.

S28. Ans.(c)

Sol. In the process of brick manufacturing, the pug mill is used in tempering. The top and bottom diameter of pug mill are 1.2 m and 0.9m respectively and the height of pug mill is about 1.5 to 2m.

S29. Ans.(b)
Sol. weathered clay is good for making the bricks.

S30. Ans.(a)
Sol. Ordinary bricks can resist the temperature up to 900°C while refractory bricks can resist the temperature above 1700°C.
S31. Ans.(b)
Sol.→ The final setting time of OPC should not be greater than 10 hours.
→ Soundness of OPC should not be greater than 10 mm.

S32. Ans.(d)
Sol. Air permeability test is conducted to determine the fineness of cement. This test is used to measure specific surface area.

S33. Ans.(d)
Sol. IS 1661 code gives specifications about cement plaster.

S34. Ans.(d)
Sol. About 38% of water by weight of cement is required to complete the hydration process and all chemical reaction.

S35. Ans.(c)
Sol. Initial setting time of rapid-hardening cement is 30 min.

S36. Ans.(a)
Sol. Refer the solution of question no. 3.

S37. Ans.(d)
Sol. Slaking of quick lime gives hydrated lime or slaked lime

$$\underset{\text{(Quick lime)}}{\mathrm{CaO} + \mathrm{H_2O}} \xrightarrow{\text{Slaking}} \underset{\text{(Hydrated lime)}}{\mathrm{Ca(OH)_2}} + \mathrm{High\ Heat}$$

S38. Ans.(a)
Sol.

S39. Ans.(d)
Sol. Decreasing order of rate of Hydration.
$\boxed{C_4AF > C_3A > C_3S > C_2S}$

S40. Ans.(c)
Sol. The temperature range in cement kiln is about 1400-1500°C

S41. Ans.(a)
Sol.

Aggregate type	Fineness Modules	
Fine aggregate (sand)	Fine sand	2.2 – 2.6
	Medium sand	2.6 – 2.9
	Coarse sand	2.9 – 3.2
Coarse aggregate		5.5 – 8.0
Moderate aggregate		3.5 – 7.5

S42. Ans.(c)
Sol.

Sr.no.	Property of Aggregate	Test
1.	Crushing strength	Crushing test
2.	Shape factor	Shape test
3.	Toughness	Impact test
4.	Hardness or abrasion	Los Angeles abrasion
5.	Durability	Soundness test

S43. Ans.(a)
Sol.

S44. Ans.(c)
Sol. An aggregate is said to be flaky if the percentage of particle having their least size smaller than $\frac{3}{5}th$ of their mean dimension.

S45. Ans.(a)
Sol. If the size of aggregate is more than 75mm. then it is known as cyclopean aggregate.

S46. Ans.(a)
Sol.

S47. Ans.(b)
Sol. The resistance of aggregate against weathering action, hydration of cement and water gives by soundness test.

S48. Ans.(b)
Sol. The presence of moisture in voids of sand increase the volume of sand.

S49. Ans.(b)
Sol. The resistance of a material to penetrations gives hardness.

S50. Ans.(b)
Sol. The impact tests are used to determine toughness.