

112. Standard quality structural steel weighs

- (a) 7.8 g/cm³
- (b) 7.85 g/cm³
- (c) 7.7 g/cm³
- (d) 7.9 g/cm³

113. Vanadium steel is normally used in the manufacture of

- (a) axles and springs
- (b) ball bearings
- (c) magnets
- (d) railway switches and crossings

114. Compared to mild steel, cast iron has

- (a) high compressive strength
- (b) low tensile strength
- (c) both (a) and (b) above
- (d) none of the above

115. Purest form of iron is

- (a) mild steel
- (b) cast iron
- (c) high carbon steel
- (d) wrought iron

116. The quality of structured steel is normally identified by

- (a) Yield stress
- (b) Ultimate stress
- (c) Proof stress
- (d) None of the above

117. Wrought iron is used for

- (a) structural works in beams
- (b) small sized water pipes
- (c) columns and struts
- (d) none of the above

118. Galvanising means covering iron with a thin coat of

- (a) tin
- (b) glaze
- (c) zinc
- (d) coal tar

119. Manganese steels

- (a) are non-magnetic
- (b) possess high electric resistance
- (c) possess low coefficient of expansion
- (d) all of the above

120. Consider the following statements: Soft varieties of pig iron are also known as

- 1. foundry pig
- 2. grey pig
- 3. forge pig
- 4. mottled pig

Of these

- (a) 1, 2, 3 and 4 are correct
- (b) 1 alone is correct
- (c) 1 and 2 are correct
- (d) 3 and 4 are correct

121. Plaster of Paris contain about

- (a) 2% of water
- (b) 6% of water
- (c) 10% of water
- (d) 0.5% of water

122. Carbonates of sodium are added during manufacture of glass to

- (a) lower down the fusing temperature
- (b) make the liquid silica more viscous
- (c) make the liquid silica better workable
- (d) all of the above

123. Thermosetting plastics

- (a) can not be reused
- (b) require great pressure and momentary heat during moulding
- (c) are used for making electrical equipments
- (d) all of the above

124. Puzzolana is

- (a) calcinised clay
- (b) fly ash
- (c) cement
- (d) both (a) and (b) above

125. Phosphorus content of 0.45% in wrought iron will cause

- 1. Red shortness
- 2. Blisters
- 3. Spill places

Of these

- (a) only 1 is correct
- (b) 1 and 2 are correct
- (c) 2 and 3 are correct
- (d) 1, 2 and 3 are correct

126. Aluminium alloy used for making pistons of I.C. engines is

- (a) Aluminium bronze
- (b) Y-alloy
- (c) Duralumin
- (d) Aldural

127. For constant water cement ratio, an increase in the cement content

- 1. improves workability
- 2. reduces workability
- 3. affects strength
- 4. does not affect strength

Of these are correct

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

1.36 Building Materials

- 145.** Three diseases related to asbestos ?
 (a) Aids, Lung Cancer, Asbestosis
 (b) Mesothelioma, Colon Cancer, Throat Cancer
 (c) Lung Cancer, Asbestosis, Mesothelioma
 (d) Mesothelioma, Asbestosis, Diabetes
- 146.** A district road with a bituminous pavement has a horizontal curve of 1000 m for a design speed of 75 km ph. The super-elevation is
 (a) 1 in 40
 (b) 1 in 50
 (c) 1 in 60
 (d) 1 in 70
- 147.** The minimum value of camber provided for thin bituminous surface hill roads, is
 (a) 2.2%
 (b) 2.5%
 (c) 3.0%
 (d) 3.5%
- 148.** Design of horizontal and vertical alignments, super-elevation, sight distance and grades, is worst affected by
 (a) width of the vehicle
 (b) length of the vehicle
 (c) height of the vehicle
 (d) speed of the vehicle
- 149.** Bitumen felt
 (a) is used as water proofing material
 (b) is used as damp proofing material
 (c) is made from bitumen and hessian fibres
 (d) all the above.
- 150.** In the cement the compound quickest to react with water, is
 (a) Tricalcium aluminate
 (b) Tetra-calcium aluminoferrite
 (c) Tricalcium silicate
 (d) Dicalcium silicate.

EXERCISE - II

(Questions From Previous SSC CPWD Exams)

2008

1. Water cement ratio is generally expressed volume of water required per
 (a) 10 kg cement (b) 20 kg cement
 (c) 50 kg cement (d) 40 kg cement
2. The most commonly used base for timber painting is
 (a) Red lead (b) Zinc white
 (c) White lead (d) Titanium white
3. Plastic asphalt is
 (a) Used as a water proofing layer over roof
 (b) A mixture of cement and asphalt
 (c) A natural asphalt
 (d) A refinery product
4. The most durable varnish is
 (a) Water varnish (b) Spirit varnish
 (c) Turpentine varnish (d) Oil varnish
5. Chemically, marble is known as
 (a) Metamorphic rock (b) Argillaceous rock
 (c) Calcareous rock (d) Siliceous rock
6. Generally wooden mould are made from
 (a) Plywood (b) Shisham wood
 (c) Deodar wood (d) Teak wood

7. Good quality sand is never obtained from

- (a) River (b) Nala
 (c) Sea (d) Gravel powder

2009

8. The brick chimney is stable if the resultant thrust lies within the middle.
 (a) Third (b) Half
 (c) Either of the above (d) None of the above
9. In paints, the pigment is responsible for:
 (a) Durability (b) Colour
 (c) Smoothness (d) Glassy face
10. Resins are
 (a) Not soluble in water (b) Soluble in spirit
 (c) Used in varnishes (d) All the above
11. The age of a tree can be known by examining
 (a) Cambium layer (b) Annular ring.
 (c) Medullary rays (d) Heart wood.
12. Asbestos is
 (a) A corrugated sheet used for roofing
 (b) An incombustible fire-proof material
 (c) An organic substance
 (d) All the above

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2010

- 17.** Dry rot
(a) Cracks the timber
(b) Reduces the timber to powder
(c) Reduces the strength of timber
(d) Shrinks the timber

18. Age of a tree may be ascertained by
(a) Radius of its stem
(b) Circumference of its stem
(c) Number of branches
(d) Number of annual rings

19. The main ingredients of Portland cement are
(a) Lime and silica (b) Lime and Alumina
(c) Silica and Alumina (d) All the above

20. Bitumen emulsion is
(a) Liquid containing bitumen in suspension
(b) Paint
(c) Used as anti-corrosive paint
(d) All the above

21. Standard penetration resistance in very stiff clay lies between:
(a) 2 and 4 (b) 4 and 8
(c) 8 and 15 (d) 15 and 30

22. Crushing strength of good building stone should be more than
(a) 500 kg/cm² (b) 1000 kg/cm²
(c) 1400 kg/cm² (d) 2000 kg/cm²

23. Sand stone is:
(a) Sedimentary rock (b) Metamorphic rock
(c) Igneous rock (d) Volcanic rock

- 24.** 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

25. Good verity of cement contains higher percentage of:
(a) Tricalcium silicate (b) Tricalcium Aluminate
(c) Dicalcium silicate (d) None of the above

26. The commonly used thinner in oil paints is
(a) Naptha (b) Turpentine
(c) Both (a) and (b) (d) Neither (a) nor (b)

27. The moisture content in a well seasoned timber is
(a) 5 to 10% (b) 10 to 12%
(c) 12 to 15% (d) 30 to 50%

28. The commonly used lime in white washing is
(a) Quick lime (b) Fat lime
(c) Hydraulic lime (d) All the above

29. Plywood is obtained by gluing wooden sheets at a pressure of
(a) 100 to 150 N/cm² (b) 100 to 130 N/cm²
(c) Both (a) and (b) (d) Neither (a) nor (b)

30. Quick sand is a
(a) Type of sand
(b) Flow condition occurring in cohesive soil
(c) Flow condition occurring in Cohesionless soil
(d) All the above

31. Characteristic strength of concrete is measured at
(a) 14 days (b) 28 days
(c) 91 days (d) 7 days

32. Bulking of sand is
(a) Less in fine sand
(b) More in coarse sand
(c) More in medium sand
(d) More in fine sand

2011

33. The volume of one bag of cement is
(a) 0.0214 cu.m (b) 0.0347 cu.m
(c) 0.0434 cu.m (d) 0.0609 cu.m

34. The commonly used lime in white washing is
(a) quick lime (b) fat lime
(c) lean lime (d) hydraulic lime

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

- 36.** King closers are related to
 (a) doors and windows (b) king post truss
 (c) queen post truss (d) brick masonry
- 37.** Minimum depth of ballast cushion for a Broad Gauge wooden sleeper of size $275 \times 25 \times 13$ cm with 75 cm sleeper spacing is
 (a) 15 cm (b) 20 cm
 (c) 25 cm (d) 30 cm

2013

- 38.** The base material for distemper is
 (a) Chalk (b) Lime
 (c) Clay (d) Lime putty
- 39.** The woodworks should be measured nearest
 (a) 0.001 m (b) 0.002 m
 (c) 0.003 m (d) 0.004 m
- 40.** The most suitable stone for building piers is
 (a) granite (b) limestone
 (c) marble (d) sandstone
- 41.** Number of modular bricks required for one cubic metre of brick masonry are
 (a) 400 (b) 450
 (c) 550 (d) 500
- 42.** The plasticity to mould bricks in suitable shape is contributed by
 (a) Alumina (b) Lime
 (c) Magnesia (d) Silica
- 43.** The crushing strength of a first class brick is
 (a) 3 N/mm^2 (b) 5.5 N/mm^2
 (c) 10.5 N/mm^2 (d) 7.5 N/mm^2
- 44.** For polishing mosaic floors we use
 (a) Carbolic acid (b) Muriatic acid
 (c) Acetic acid (d) Oxalic acid
- 45.** Sand particles are made of
 (a) Kaolinite
 (b) Illite
 (c) Montmorillonite
 (d) Quartz

2014

- 46.** Which of the following type of lime is used for underwater constructions
 (a) Fat lime
 (b) Quick lime
 (c) Slaked lime
 (d) Hydraulic lime

- 47.** The main gas liberated from an anaerobic sludge digestor is :
 (a) NH_3 (b) CO
 (c) CO_2 (d) CH_4
- 48.** Most important constituents of cement are :
 (a) C_3A and C_2S (b) C_3S and C_3A
 (c) C_3S and C_2S (d) C_3A and C_4AF
- 49.** Which of the following has least carbon content ?
 (a) Wrought Iron (b) Cast Iron
 (c) Mild steel (d) Pig steel
- 50.** Weight of one bag of cement is :
 (a) 70 kg (b) 50 kg
 (c) 60 kg (d) 65 kg
- 51.** Basalt stone is by nature :
 (a) meta morphic (b) volcanic
 (c) plutonic (d) sedimentary
- 52.** Gravel and sand belongs to the following category of soils
 (a) alluvial (b) cohesive
 (c) expansive (d) marine
- 53.** Thickness of Plastering is usually
 (a) 40 mm (b) 6 mm
 (c) 12 mm (d) 25 mm
- 54.** Granite is a rock that is by nature
 (a) metamorphic (b) volcanic
 (c) plutonic (d) sedimentary
- 55.** Zinc Oxide is a pigment having colour _____
 (a) blue (b) white
 (c) yellow (d) red
- 56.** The correction for sag is :
 (a) Sometimes additive and sometimes subtractive
 (b) Always additive
 (c) Always subtractive
 (d) Always zero
- 57.** Which of the following types of lime is used for plastering and white washing ?
 (a) Quick lime (b) Slaked lime
 (c) Hydraulic lime (d) Fat lime
- 58.** Identify the **wrong** statement.
 (a) Bulking of sand can go up to 40%.
 (b) Bulking of sand is maximum at 4.6% moisture content.
 (c) Bulking of sand is considered in weigh batching of concrete mix.
 (d) Bulking of sand occurs due to free moisture film formation over sand grain.

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2015

- 68.** Snowcem is
(a) coloured cement
(b) powdered lime
(c) chalk powder
(d) mixture of chalk powder and lime

79. The value of demolished material is known as
(a) Scrap value
(b) Salvage value
(c) Resultant value
(d) Material value

ANSWERS

EXERCISE - I

1. (c)	2. (a)	3. (c)	4. (a)	5. (a)	6. (b)	7. (a)	8. (a)	9. (a)	10. (b)
11. (b)	12. (b)	13. (a)	14. (b)	15. (b)	16. (a)	17. (d)	18. (c)	19. (d)	20. (b)
21. (c)	22. (c)	23. (b)	24. (d)	25. (a)	26. (c)	27. (b)	28. (c)	29. (b)	30. (c)
31. (c)	32. (a)	33. (c)	34. (b)	35. (c)	36. (c)	37. (d)	38. (d)	39. (b)	40. (b)
41. (a)	42. (c)	43. (d)	44. (b)	45. (b)	46. (c)	47. (a)	48. (a)	49. (c)	50. (d)
51. (b)	52. (c)	53. (c)	54. (d)	55. (c)	56. (a)	57. (c)	58. (c)	59. (a)	60. (dc)
61. (c)	62. (d)	63. (d)	64. (a)	65. (d)	66. (b)	67. (a)	68. (d)	69. (d)	70. (c)
71. (a)	72. (b)	73. (a)	74. (b)	75. (c)	76. (b)	77. (c)	78. (a)	79. (c)	80. (b)
81. (d)	82. (c)	83. (d)	84. (b)	85. (c)	86. (b)	87. (a)	88. (c)	89. (c)	90. (b)
91. (c)	92. (c)	93. (c)	94. (b)	95. (d)	96. (d)	97. (b)	98. (d)	99. (b)	100. (a)
101. (d)	102. (a)	103. (e)	104. (b)	105. (a)	106. (d)	107. (a)	108. (b)	109. (c)	110. (b)
111. (a)	112. (a)	113. (c)	114. (d)	115. (a)	116. (d)	117. (c)	118. (e)	119. (c)	120. (b)
121. (d)	122. (d)	123. (d)	124. (a)	125. (a)	126. (a)	127. (d)	128. (d)	129. (b)	130. (a)
131. (d)	132. (c)	133. (d)	134. (a)	135. (c)	136. (d)	137. (b)	138. (a)	139. (d)	140. (c)
141. (c)	142. (c)	143. (*)	144. (c)	145. (a)	146. (b)	147. (d)	148. (d)	149. (a)	

EXERCISE - II

1. (c)	2. (c)	3. (b)	4. (d)	5. (c)	6. (b)	7. (c)	8. (a)	9. (b)	10. (d)
11. (b)	12. (d)	13. (c)	14. (a)	15. (c)	16. (b)	17. (b)	18. (d)	19. (a)	20. (a)
21. (d)	22. (b)	23. (a)	24. (b)	25. (a)	26. (c)	27. (b)	28. (b)	29. (d)	30. (c)
31. (b)	32. (d)	33. (b)	34. (b)	35. (b)	36. (d)	37. (c)	38. (a)	39. (b)	40. (a)
41. (d)	42. (a)	43. (c)	44. (d)	45. (d)	46. (d)	47. (d)	48. (c)	49. (a)	50. (b)
51. (c)	52. (a)	53. (c)	54. (c)	55. (b)	56. (c)	57. (d)	58. (c)	59. (b)	60. (c)
61. (d)	62. (c)	63. (d)	64. (c)	65. (c)	66. (d)	67. (b)	68. (a)	69. (d)	70. (d)
71. (d)	72. (b)	73. (a)	74. (a)	75. (a)	76. (b)	77. (d)	78. (d)	79. (a)	

EXPLANATIONS

EXERCISE - II

- Water cement ratio is generally expressed volume of water required per 50 kg cement.
- The most commonly used base for timber painting is White lead.
- Plastic asphalt is a mixture of cement and asphalt.
- The most durable varnish is Oil varnish
- Chemically rocks are classified into three categories**

- Agrillaceous Rocks:** The chief constituent of agrillaceous rocks is clay Alumina, Al_2O_3 . Slate and laterite are its examples.
- Silicious Rocks:** The chief constituent of silicious rocks is sand (Silica, SiO_2). quartzite and granite are its examples.

- Calcareous Rock:** The chief constituent of calcareous rocks is lime. Its examples are lime stone and marble.
- Generally wooden mould are made from Shisham wood.
- Good quality sand is never obtained from sea.
- The brick chimney is stable if the resultant thrust lies within the middle third.
- Pigments are used to hide the surface imperfections and also to impart the desired colour.
- Characteristics of Resin or resinous substance :**
 - A resin or resinous substance is a natural or synthetic organic substance which is soluble in some organic solvent.

1.42 Building Materials

- It is soluble in **alcohol or spirit**, but **not in water**.
 - It acts as a base and provides body to the **varnish**.
 - The commonly used resins are copal, Lac or shellac, Rosin etc.
11. The age of a tree can be known by examining by counting number of annular ring.
12. **Asbestos**
- Asbestos is an acid-proof and fire-proof natural fibrous mineral substance of different colours.
 - It is a silicate of calcium and magnesium. It also contains small amount of iron oxide and alumina.
 - The original source of asbestos was the mineral 'actinolite', but the variety of 'serpentine' known as 'chrysotile' now furnishes most of the commercial asbestos.
 - Corrugated sheet used for roofing and siding industrial buildings.
13. Quartz and mica are minerals while Gypsum, is a chemically precipitated by sedimentary rock.
14. A good building stone should possess low water absorption (i.e., Percentage absorption after 24 hours less than 0.6) and rejected if it absorbs water more than 5%.
15. The crushing strength of the **first class** brick should not be less than 10.5 N/mm^2 or 100 kg/cm^2
- The crushing strength of the **Second class** brick should not be less than 7.0 N/mm^2 or 70 kg/cm^2
- The crushing strength of the **Third class** brick should not be less than 5.5 N/mm^2 or 55 kg/cm^2
16. Plaster of paris is obtained by incompletely dehydrating pure finely ground **gypsum** at a temperature somewhat lower than 185°C .
17. Dry rot is decomposition of felled timber. It is caused by the action of various fungi. The fungus reduces fibres to **fine powder** and the timber loses its strength.
18. Age of a tree may be ascertained by number of annual rings.
20. **Bitumen emulsion**
- Bitumen emulsion is a liquid product containing bitumen in a very finely divided state to a great extent in an aqueous medium. The bitumen is suspended in the aqueous medium with the help of some suitable stabilising agent.
21. Standard penetration resistance in very stiff clays lies between 15 and 30.
22. **Requirements of a Good Building Stone:**
- A good building stone should possess several characteristics such as high strength (i.e., **crushing strength** $> 1000 \text{ kg/cm}^2$ (100 MPa)), high durability, sufficient hardness (i.e., coefficient of hardness > 14), high resistance to wear, good fire resistance, specific gravity more than **2.7**, crystalline structure, high impact value (i.e., toughness index > 13), low water absorption (i.e., Percentage absorption after **24** hours less than **0.6**), facility for carving and dressing, weather resistance and better appearance. Generally stones from igneous and metamorphic rocks are heavier and more durable than stones from sedimentary rocks.
23. **There are three types of rocks based on geological formation :**
1. **Igneous Rocks**
- It is also known as primary, unstratified or eruptive rocks. They are formed by volcanic origin and are formed as a result of solidification of molten mass lying below or above the earth's surface. For examples Granite, rhyolite, basalt etc.
2. **Sedimentary Rocks**
- It is also known as aqueous or stratified rocks. The various weathering agencies, e.g. rain, sun, air, frost, etc. Break up the surface of earth. Due to the seasonal variation, sedimentation takes place in layers. With time, the sediments get consolidated in horizontal beds due to the pressure exerted by overlying material. For examples Gypsum, **sandstone**, limestone etc.
3. **Metamorphic Rocks**
- Metamorphic rocks are formed from igneous or sedimentary rocks. This type of rocks is formed by the action of the earth movements, temperature changes, liquid pressures, etc. Ex-Marble, Quartzite etc.
24. Rocks are classified into three categories :
1. **Agrillaceous Rocks:** The chief constituent of agrillaceous rocks is **clay** Alumina, Al_2O_3 Slate and laterite are its example.
 2. **Silicious Rocks:** The chief constituent of silicious rocks is sand (Silica, SiO_2). Quartzite and Granite are its example.

3. **Calcareous Rock:** The chief constituent of calcareous rocks is lime. Its examples are Lime stone and marble.
25. Tricalcium silicate (C_3S): $3CaO \cdot SiO_2$
It contains
 - 25-50% (40% normally) of cement.
 - Supposed to be the **best cementing material** and well burnt cement.
 - Generating high heat of evolution and faster rate of reaction.
 - Develops an early hardness and strength.
26. Solvents of oil paints are used to thin the paints, increase the spread, and are also known as thinner. They make the paint of workable consistency and evaporate during drying of the film.
For example petroleum, spirit, naptha and turpentine oil are used for common thinning agents.
27. The moisture content in a well seasoned timber is 10 to 12%.
28. Fat lime is suitable for **whitewashing** and plastering.
Hydraulic lime is suitable for making mortar and used for masonry construction.
29. The pressure applied on plywoods varies from 0.70 to 1.40 N/mm² (70 to 140 N/cm²)
30. **Quick Sand Condition-**
If the seepage pressure becomes equal to the pressure due to submerged weight of the soil, then evidently the effective pressure is reduced to zero. In such a limiting case, the **Cohesionless soil** loses all its shear strength, and the soil particles will have a tendency to move up in the direction of flow. This phenomenon of lifting of soil particles is called the quick condition or boiling condition or **quick sand**.
The hydraulic gradient corresponding to this situation (just starting) is called **critical hydraulic gradient (i_c)**.
- $$i_c = \frac{G - 1}{1 + e}$$
- Where, G = Specific gravity
 e = void ratio
31. In the designation of concrete mix M refer to the mix and the number to the specified compressive strength of 150 mm size cube at 28 days, expressed in N/mm².
32. **Bulking :** The increase in the volume of a given mass of fine aggregate caused by the presence of water is known as bulking.
The extent of bulking depends upon the percentage of moisture present in the sand and its fineness. Bulking of sand is more in fine sand.
-
- | Moisture Content (%) | Fine sand (%) | Medium sand (%) | Coarse sand (%) |
|----------------------|---------------|-----------------|-----------------|
| 0 | 0 | 0 | 0 |
| 2 | 35 | 25 | 15 |
| 5 | 38 | 28 | 18 |
| 10 | 35 | 25 | 15 |
| 15 | 30 | 20 | 10 |
| 20 | 25 | 15 | 5 |
37. Minimum depth of Ballast cushion
- $$D_b = \frac{s - w}{2}$$
- s = spacing of sleeper = 75 cm
 w = width of sleeper = 25 cm
- $$\therefore D_b = \frac{75 - 25}{2} = 25 \text{ cm}$$
38. Base material for distemper is chalk.
40. Granite (it is used for bridge, piers, docks and other marine structure).
41. 500, in Brick masonry the size of brick is
 $\Rightarrow 20 \times 10 \times 10 \text{ (cm)}$
 Volume = $20 \times 10 \times 10 = 2000 \text{ cm}^3$
 Then number of bricks required in 1 m³
 $\Rightarrow \frac{1 \times (100)^3 \text{ cm}^3}{2000 \text{ cm}^3}$
 $\Rightarrow 500 \text{ bricks}$
43. Crushing strength of first class brick
 $= 10.5 \text{ N/mm}^2$
46. **Fat lime**
 - Also known as high calcium lime, pure lime, rich lime or white lime.
 - Suitable for **whitewashing** and plastering.**Hydraulic lime**
 - Also known as the water lime as it sets underwater.
 - Contains silica, alumina and iron oxide in small quantities.
 - Suitable for making mortar and used for masonry construction.

1.44 Building Materials

Quicklime

- Calcium oxide (CaO), commonly known as quicklime or burnt lime or lime.
- Calcium oxide is a key ingredient for the process of making cement.
- Used for Plaster work and under water construction.

Slaked lime

- Calcium hydroxide ($\text{Ca}(\text{OH})_2$), traditionally called slaked lime.
- It has many names including hydrated lime, builders' lime, slack lime, cal, or pickling lime.
- Used in road construction, to improve the quality of excessively plastic subgrade soils.

47. During the anaerobic digestion approximately 70% of the methane (CH_4) produced.

48. Bouge's compounds Contribution

(% age)

C_4AF	08 – 14 (about 9%)
C_3A	05 – 11 (about 10.5%)
C_2S	25 – 40 (about 32%)
C_3S	25 – 50 (about 40%)

Material	Carbon content in %age
Steel	0.25-1.5
Wrought iron	0.05-0.15
Cast iron	1.7-4.5
Pig iron	3.5-4.5

50. Weight of one bag of cement = 50 kg

Unit weight of cement bag = 1440 kg/m^3

$$\text{Volume of one bag of cement} = \frac{50}{1440} = 0.0347 \text{ m}^3$$

55. Zinc oxide is a pigment having colour white.

Some of examples of pigments used to produce the desired colours are-

Pigment	Colour
Zinc oxide	White
Lamp black and ivory black	Black
Prussian blue, indigo	Blue
Chrome yellow, yellow ochre	Yellow
Burnt umber, burnt sienna	Brown
Vermilion, red lead	Red
Copper sulphate	Green

57. Fat lime-for white washing & Plastering and hydraulic lime is for plastering in fine form.

58. Bulking of sand should be taken into account when volumetric proportioning of the aggregate is adopted, otherwise less quantity of concrete per bag of cement will be produced.

59. Classification of bricks (IS : 3102).

68. Snowcem paints leaders in exterior waterproof cement paints.

