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Q : 1) In cement, ratio of silica : Lime : Alumina is approximately

A : 10 : 4 : 1

B : 4 : 10 : 1

C : 1 : 10 : 4

D : 1 : 4 : 10

Q : 2) Which of the following pairs is not matched correctly?

Cement test	Apparatus
(a) Fineness	1. Nurse and Blains
(b) Consistency	2. Vicat
(c) Soundness	3. Le-Chatelier
(d) Sp. Gravity	4. Lea and Nurse

Q : 3) For low alkali, content is usually restricted to X% by weight, where X is:

A : 0.04

B : 0.40

C : 0.50

D : 0.60

Q : 4) The durability of concrete is proportional to

A : Sand content

B : Water cement ratio

C : Cement aggregate ratio

D : Aggregate water ratio

Q : 5) Before testing setting time of cement, one should test for:

A : Soundness

B : Strength

C : Fineness

D : Consistency

Q : 6) In soundness test by Le Chatelier's apparatus the increase in the distance between the pointers should not be more than

A : 1 to 2 mm

B : 3 to 5 mm

C : 5 to 10 mm

D : 10 to 15 mm

Q : 7) For testing the compressive and the tensile strength to cement, the cement mortar is made by mixing cement and standard sand in the proportion of

A : 1 : 2

B : 1 : 3

C : 1 : 4

D : 1 : 6

Q : 8) For testing compressive strength of hydraulic cement other than masonry cement as per IS 4031-Part 6. the size of cube used is

OR

For testing of compressive strength of cement, the size of cube mould is:

A : 10 cm

B : 7.06 cm

C : 50 cm

D : 15 cm

Q : 9) Quick setting cement is produced by adding:

A : Less amount of gypsum in powder form

B : More amount of gypsum in powder form

C : Aluminium sulphate in powder form

D : Pozzolana in powder form

Q : 10) The ultimate strength of cement is provided by

OR

In hydrated cement paste, the principal strength contributing component is

A : Dicalcium silicate

B : Tricalcium aluminate

C : Silica

D : Tricalcium silicate

Q : 11) In the context of use of OPC and other cementations materials used in concrete, consider the following statements:

Sttaement-1: Bogue's equations are used to determine amounts of oxides of calcium, silicon, etc. In a given cement as the amounts of C3S, C₂S, C₃A and C₄AF are known

Statements-2: Particle of both OPC and flyash are spherical in shape.

Which of the following is CORRECT?

A : Both statements are true

B : Statement-1 is false and statement-2 is true

C : Statement-1 is true and statement-2 is false

D : Both statements are false

Q : 12) The amount of tetra calcium aluminoferrite required that is responsible for flash set but generates less heat is approximately _____ of cement.

A : 16-20%

B : 8-14%

C : 25-40%

D : 5-7%

Q : 13) Which of the following is correct of they are arranged in decreasing order of heat of hydration?

A : $C_3A > C_4AF > C_3S > C_2S$

B : $C_3A > C_4AF > C_2S > C_3S$

C : $C_3A > C_3S > C_4AF > C_2S$

D : None of the above

Q : 14) The addition of pozzolana to Portland cement may cause-

A : Decrease in early strength

B : Increase in early strength

C : Decrease in curing time

D : Increase in permeability

Q : 15) During cement manufacturing, when clinkers are formed, kiln temperature approximately is

A : 1200°C

B : 1800°C

C : 1600°C

D : 1300°C

Q : 16) Match List-I (Type of cement) with List-II (Property / Characteristics) and select the correct answer using the codes given below the lists:

List-I (Type of cement)	List-II (Property / characteristics)
A. High strength Portland cement	1. Should not be used with ant admixture
B. Super sulphated cement	2. Is extremely resistant to chemical attack
C. High alumina cement	3. Gives a higher rate of heat development during hydration of cement
D. Rapid hardening Portland cement	4. Has a higher content of tricalcium silicate

Codes:

A : 3, 2, 1, 4

B : 3, 1, 2, 4

C : 4, 1, 2, 3

D : 4, 2, 1, 3

Q : 17) Loss on ignition in Portland cement shall not be greater than:

A : 4%

B : 5%

C : 6%

D : 3.5%

Q : 18) Which cement has higher corrosion resistance?

A : Having higher C_3A

B : Having higher C_2S

C : Having higher C_3S

D : Having higher Na_2O

Q : 19) For complete hydration of cement, the water cement ratio is:

A : Less than 0.25

B : More than 0.25 but less than 0.35

C : More than 0.35 but less than 0.45

D : More than 0.45 but less than 0.60

Q : 20) Loss of strength of cement stored in bags in go downs for 3 months is about

A : 30%

B : 50%

C : 15%

D : 0%

Q : 21) According to IS 4031 (Part 5), the set time of cement is measured at

A : Room temperature and humidity

B : 25-29 degree C and 90-100% Rel. humidity

C : 25-27 degree C and 95% Rel. humidity

D : 25-29 degree C and 60-70% Rel. humidity

Q : 22) Which of the following is not used in the design calculation of concrete mix design according to the last version of IS 1026?

A : Water/cement ratio

B : Various zones zone of fine aggregate

C : Water reduction by superplasticizer

D : Alkali content of cement

E : Workability

Q : 23) Which of the following is not a major constituent of fly-ash?

A : Aluminum oxide

B : Silica

C : Ferrous

D : Cobalt oxide

Q : 24) Maximum content (kg/cm^3) of ordinary Portland cement in design mix of concrete (1 m^3) is:

A : 500

B : 450

C : 350

D : 400

Q : 25) The percentage of the slag component of Portland-slag cement varies from:

A : 10 to 40%

B : 40 to 70%

C : 70 to 80%

D : 80 to 90%

Q : 26) The percentage of the residue left after sieving good Portland cement in 90 micron sieve should not exceed.

A : 50%

B : 10%

C : 20%

D : 30%

Q : 27) Consider the following statements:

- 1. Hydrophobic cement grains possesses low wetting ability.**
- 2. Rapid-hardening cement is useful in concreting under static, or running water**
- 3. Quick-setting cement helps concrete to attain high strength in the initial period**
- 4. White cement is just a variety of ordinary cement free of colouring oxides**

Which of the above statements are correct?

A : 1 and 4 only

B : 1 and 3 only

C : 2 and 4 only

D : 2 and 3 only

Q : 28) Which one of the following stone is produced by moulding a mixture of iron slag and Portland cement?

A L Imperial stone

B : Garlic stone

C : Ransom stone

D : Victoria stone

Q : 29) Which one of the following cements is a deliquescent?

A : Quick setting Portland cement

B : White and coloured cement

C : Calcium chloride cement

D : Water repellent cement

Q : 30) Blast furnace slag has approximately

A : 45% calcium oxide and about 35% silica

B : 50% alumina and 20% calcium oxide

C : 25% magnesia and 15% silica

D : 25% calcium sulphate and 15% alumina

Q : 31) What percentage of bound water by weight of cement is required for chemical reaction with Portland cement compounds?

A : 15%

B : 23%

C : 38%

D : 40%

Q : 32) AS per IS 10262 OPC is divided into how many grades?

A : 3

B : 5

C : 7

D : 6

Q : 33) Amount of water required for soundness test is (in percentage)

A : 0.78 P

B : 0.85 P

C : 0.75 P

D : 0.87 P

Q : 34) IS code for Portland pozzolana cement is?

A : IS 1489

B : IS 269

C : IS 455

D : IS 3466

Q : 35) Cement is said to be of good quality if

A : It is not smooth when rubbed in between fingers

B : It's colour is greenish gray

C : A handful of cement thrown into a bucket of water does not float

D : None of the above

Q : 36) For a 50 kg bag of cement, water required is

A : 22.5 litres

B : 20.5 liters

C : 18.5 liters

D : 23.5 liters

Q : 37) Autoclave method is used to determine:

A : Residue

B : Expansion

C : Heat of hydration

D : Sulphur content

Q : 38) What should be the consistency, in mm, of the mortars used for filling cavities?

A : 90-130

B : 100-125

C : 130-150

D : 70-80

Q : 39) In fineness test of Rapid hardening Portland cement (RHPC) the residue on IS sieve No. 9 should not be more than

A : 1.0%

B : 5%

C : 10%

D : 15%

Q : 40) Total sulphur content of cement is less than

A : 0.025%

B : 2.5%

C : 0.25%

D : 5.0%

Q : 41) White cement is white in colour due to

A : Use of limestone and China clay free from metal oxides

B : Its modified manufacturing process

C : Specific chemical treatment given to ordinary cement

D : None of these

Q : 42) What is the maximum permissible additives in cement for construction as per IS code?

A : 5%

B : 3%

C : 2%

D : 4%

Q : 43) Bulking of sand is maximum if moisture content is approximately

A : 4%

B : 7%

C : 10%

D : 15%

Q : 44) A phenomenon commonly observed in river sands for which adequate precautions need to be taken estimating, measuring and receiving sands at constructions sites is:

A : Blistering

B : Silting

C : Hydration

D : Bulking

Q : 45) Compaction factor apparatus is used to measure which of the following properties of concrete?

A : Consistency

B : Compatibility

C : Compatibility with admixture

D : Cohesiveness

Q : 46) Grading of aggregate in the concrete mix is necessary to achieve

A : Adequate workability

B : Higher density

C : Reduction in voids

D : Better durability

Q : 47) In the content of air entrainment in fresh concrete consider the following statements:

Statement-1 : Air entrainment is required in cases when concrete is likely to be subjected to alkali aggregate reaction.

Statement-2: Air entrainment has the effect of increasing the workability of concrete at the same unit water content.

Which of the following is correct?

A : Statement-1 is true and statement-2 is false

B : Both statements are false

C : Both statements are true

D : Statement-1 is false and statement-2 is true

Q : 48) Choose the correct statement-

(a) The strength of fully compacted concrete is inversely proportional to the water cement ratio.

(b) The strength of fully compacted concrete is directly proportional to the water cement ratio.

A : Statement (a) is true

B : Statement (b) is true

C : Both the statements (a) and (b) are true

D : Both the statements (a) and (b) are false

Q : 49) The value of pulse velocity of good quality concrete should be:

A : More than 3.5 km/s

B : Less than 3.5 km/s

C : Less than 2.0 km/s

D : None of the above

Q : 50) Workability of concrete is influenced most by its:

A : Cement content

B : Aggregate – cement ratio

C : Water – cement ratio

D : None of the above

Q : 51) Compaction factor of 0.85 indicates a mix of:

A : Low workability

B : High workability

C : Very low workability

D : None of the above

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