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Q : 1) The ratio of percentage of alumina to that of iron oxide in ordinary cement should not be less than

A : 0.55

B : 0.66

C : 1.02

D : 2.75

Q : 2) Slump value for mass concrete should range between

A : 0 - 25mm

B : 25 - 50mm

C : 50 - 100mm

D : 100 - 175mm

Q : 3) Which of the following grades of concrete would you recommend to prepare the base for foundation of a masonry wall?

A : M7.5

B : M15

C : M20

D : M30

Q : 4) If the flexural strength of concrete is A and that the compressive strength is B, then A equals

A : $0.7\sqrt{B}$

B : $1.15\sqrt{B}$

C : \sqrt{B}

D : $\sqrt{0.7B}$

Q : 5) What is the minimum value of individual test results(in N/mm^2) for compressive strength compliance requirement for concrete M20 as per codal provision

A : $F_{ck} - 1$

B : $f_{ck} - 3$

C : $f_{ck} - 4$

D : $f_{ck} - 5$

Q : 6) In cold weather countries cement preferred is

A : Ordinary Portland cement

B : Pozzolana cement

C : Calcium chloride cement

D : Low heat cement

Q : 7) The nominal maximum size of coarse aggregate in reinforced cement concrete is limited to

A : One fourth the minimum thickness of member

B : One half the minimum thickness of member

C : Equal to minimum thickness of member

D : One sixth the minimum thickness of member

Q : 8) Air permeability test of cement is conducted to find the

A : Unsoundness

B : Ignition loss

C : Specific gravity

D : Ifineness

Q : 9) Which compound is undesirable in cement

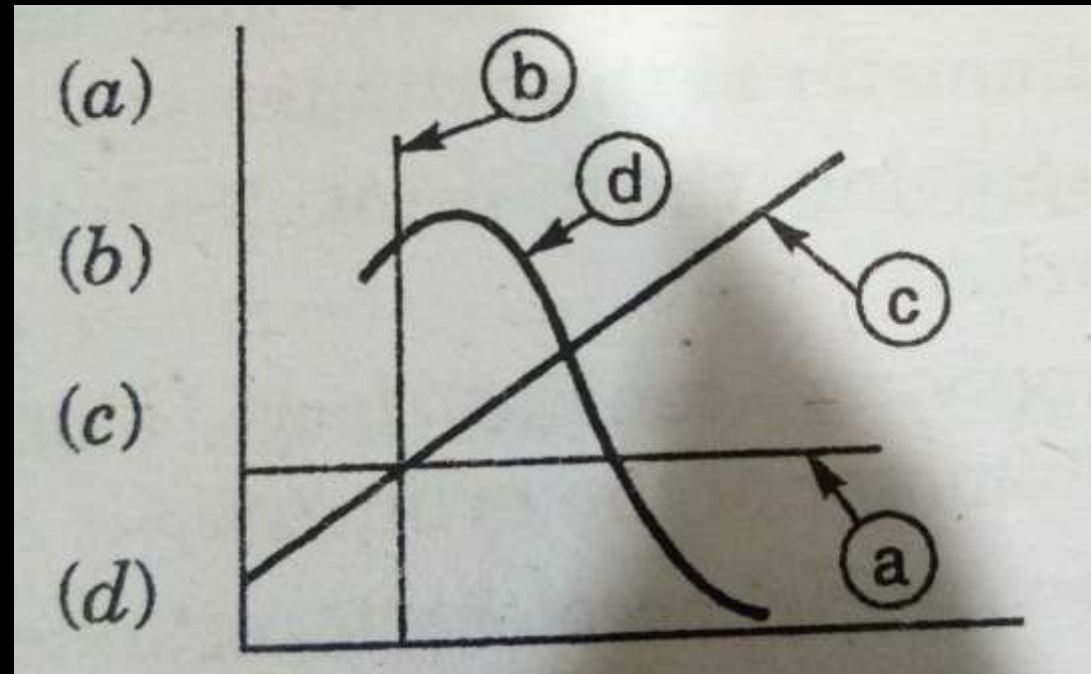
A : Tricalcium silicate

B : Dicalcium silicate

C : Tricalcium aluminate

D : Tetra calcium aluminoferrite

Q : 10) Cement to water ratio curve in figure is



Q : 11) If the water/cement ratio is reduced from 0.45 to 0.38

A : The strength of concrete will decrease

B : The strength of concrete will increase

C : Shrinkage cracks will develop

D : Both B & C

Q : 12) Mixes with same workability, flexural strength of concrete with round shaped aggregate is

A : Less than concrete with angular shaped aggregates

B : More than concrete with angular shaped aggregate.

C : Same as with angular shaped aggregate

D : Can not be predicted

Q : 13) Flash set in OPC is due to

A : Tri-Calcium aluminate

B : Tetra-calcium aluminoferrite

C : Absence of gypsum

D : Di-Calcium silicate

Q : 14) The length of time for which a concrete mixture will remain plastic is usually more dependent on

A : The setting time of cement than on the amount of mixing water and atmospheric temperature

B : The atmospheric temperature than on the amount of mixing water and setting time of cement

C : The setting time of cement and the amount of mixing water than on atmospheric temperature

D : The amount of mixing water used and the atmospheric temperature than on the setting time of cement.

Q : 15) Which one of the following statements about creep is correct?

A : It is time dependent phenomenon which occurs at very high temperatures

B : It is time dependent phenomenon which can occur even at normal temperature

C : It is cycle dependent phenomenon and dependent only on the number of cycles

D : It is a time dependent phenomenon.

Q : 16) Re-tempering process is used in

A : Ready-mix concrete

B : Prolonged mixing

C : Pumped concrete

D : Compaction of concrete

Q : 17) Pick up the incorrect statement:

A : About 10 percent more cement is consumed in making concrete if hand mixing is done

B : 5 percent voids in cement concrete reduce strength upto 30 percent

C : Curing of OPC is done for 7 days

D : In high pressure steam curing bond strength is increased.

Q : 18) Which of the following factors influence the shrinkage of concrete?

- 1. modulus of elasticity of concrete**
- 2. specific gravity of concrete**
- 3. high water/cement ratio**
- 4. Relative humidity**

Of these

A : only 1 is correct

B : 1 & 3 are correct

C : 1, 2 & 4 are correct

D : 1, 2, 3 & 4 are correct

Q : 19) Consider the following statements:

High water/cement ratio in concrete results in:

- 1. Stronger mix**
- 2. Better workable mix**
- 3. A weak mix**
- 4. Less bleeding**

Of these statements:

A : 1 & 2 are correct

B : 2 & 3 are correct

C : 3 & 4 are correct

D : 1 & 4 are correct

Q : 20) Consider the following statements:

Ultrasonic pulse velocity test to measure the strength of concrete is

- 1. Used to measure the strength of wet concrete.**
- 2. Used to obtain an estimate of concrete strength of finished concrete elements**
- 3. A non-destructive test**

A : 1, 2 & 3 are correct

B : 2 & 3 are correct

C : 1 & 2 are correct

D : 1 & 3 are correct

Q : 21) Consider the following statements:

The effect of sea water on hardened concrete is to

- 1. Increase its strength**
- 2. Reduce its strength**
- 3. Retard its durability**
- 4. Decrease its durability**

Of these statements

A : 1 & 3 are correct

B : 2 & 3 are correct

C : 2 & 4 are correct

D : 1 & 4 are correct

Q : 22) Match list 1 with list 2 and select the correct answer using the codes given below the lists:

List 1 (type of cement)	List 2 (characteristics)
A)air entraining Portland cement	1. Suitable for very large structures
B)low heat Portland cement	2.unsuitable for very large masses of concrete
C)hydrophobic cement	3.greater resistance to frost attack
D)rapid hardening Portland cement	4. Safe storage under unfavorable conditions of humidity.

Codes:

A : 4, 2, 1, 3

B : 3, 4, 1, 2

C : 3, 1, 4, 2

D : 4, 1, 2, 3

Q : 23) Assertion(A): calcium chloride addition in concrete proves more effective in slow-hardening Portland cement than in rapid-hardening cement
Reason(R): Calcium Chloride acts as an effective accelerator thereby increasing the rate of reaction.

A : Both A & R is correct and R is the correct explanation of A

B : Both A & R is correct and R is not the correct explanation of A

C : A is true but R is false

D : A is false but R is true

Q : 24) Assertion(A): Concrete prisms with heights inferior to their sides have greater compressive strength than cubes.

Reason(R): when a specimen is compressed, the press plates are forced tight against its bases and the resultant frictional forces prevent the expansion of adjoining faces while the central lateral parts of the specimen, suffer transversal expansion which is encountered only by the adhesive forces between the material. Thus, the further away is a cross-section from the press plates, thus easily it fails and so does the entire specimen.

A : Both A & R is correct and R is the correct explanation of A

B : Both A & R is correct and R is not the correct explanation of A

C : A is true but R is false

D : A is false but R is true

Q : 25) Assertion(A): water-cement ratio on concrete is limited to a maximum value

Reason(R): more water than the maximum limit will cause shrinkage and creep of hardened concrete

A : Both A & R is correct and R is the correct explanation of A

B : Both A & R is correct and R is not the correct explanation of A

C : A is true but R is false

D : A is false but R is true

Q : 26) In brick masonry, arch action is possible only when the maximum height of wall above the top of lintel is X times the height of triangular distribution, where X is

A : 1.00

B : 1.25

C : 1.5

D : 1.75

Q : 27) In order to achieve a safe compressive strength of 2.0kg/cm^2 in brick masonry, what should be the suitable range of crushing strength of bricks.?

A : 35 kg/cm^2 to 70kg/cm^2

B : 70kg/cm^2 to 105kg/cm^2

C : 105kg/cm^2 to 125kg/cm^2

D : more than 125kg/cm^2

Q : 28) Where a masonry column is provided with lateral support parallel to the line of one of the horizontal surface dimensions at the top, its effective height at right angles to this is taken as?

A : equal

B : 1.2 times

C : 1.5 times

D : 2 times

Q : 29) When concrete floors have a bearing on masonry walls irrespective of the direction of the span, the effective height of the wall should be

A : $0.75H$

B : $0.85H$

C : $1.00H$

D : $1.5H$

Q : 30) The effective height of masonry columns having adequate lateral support and partial rotational restraint at one end and lateral restraint at the other end, is

A : $0.75H$

B : $0.85H$

C : $1.00H$

D : $1.5H$

Q : 31) The slenderness ratio of masonry load bearing column should not exceed

A : 10

B : 12

C : 18

D : 20

Q : 32) The thickness of each leaf of cavity wall should not be less than

A : 7.5cm

B : 10cm

C : 15cm

D : 20cm

Q : 33) The total width of opening in a load bearing wall between the adjacent cross walls should not exceed

A : $\frac{1}{4}$ th

B : half

C : $\frac{3}{4}$ th

D : $\frac{5}{8}$ th

Q : 34) A reinforced cement concrete band provided in a masonry wall should have a minimum concrete grade

A : M10

B : M15

C : M20

D : M25

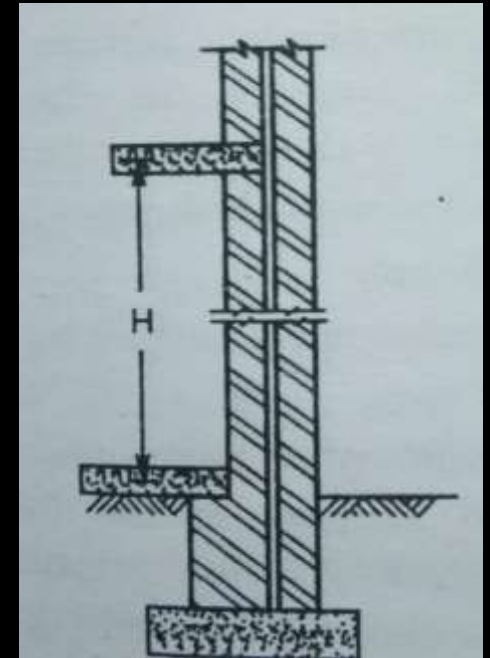
Q : 35) For the masonry wall shown in figure the effective height will be

A : $0.75H$

B : $0.85H$

C : $1.00H$

D : $2.00H$



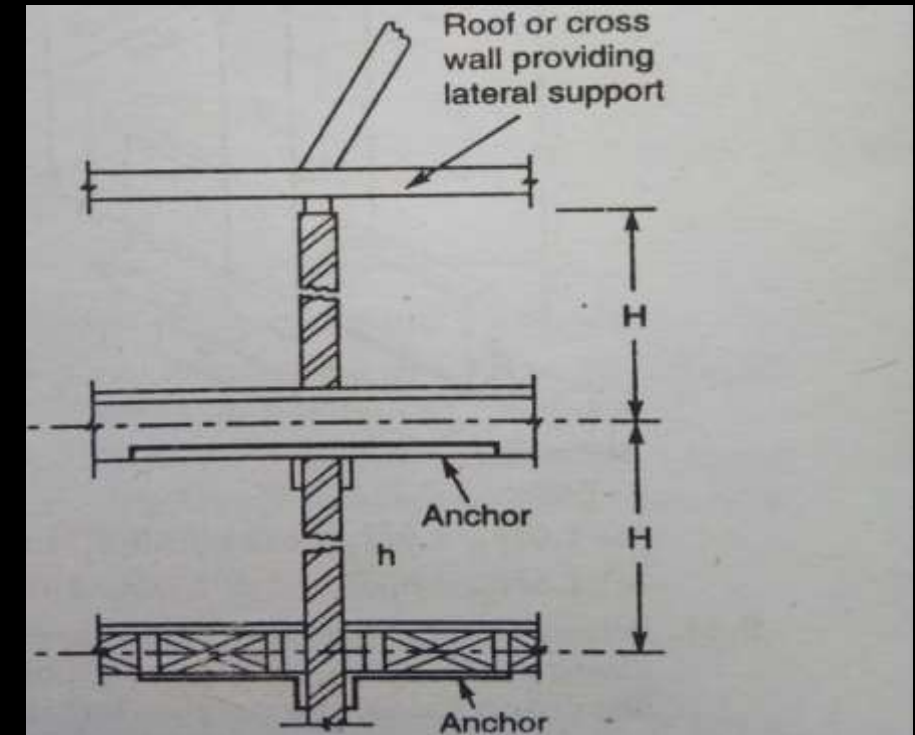
Q : 36) For the masonry wall shown in the figure the effective height will be

A : $0.65H$

B : $0.75H$

C : $0.85H$

D : $1.00H$



Q : 37) Brick masonry walls and columns of a building are to be protected from the earthquake. The earthquake proofing is done by providing

A : cross wall

B : less openings

C : under reamed piles

D : a steel band at corners above windows below ceiling

Q : 38) When a beam or truss is placed on a masonry wall, it is supported on the bed stone or bed plate. The bed stone or bed plate is necessary to

A : add to aesthetic appearance

B : transfer the reaction over a larger contact area

C : increase stability of beam or truss

D : prevent outward thrust on the wall

Q : 39) An unreinforced buttress providing lateral support to free standing masonry wall should project at least

A : half of the wall thickness at support

B : 100mm

C : greater of A or B

D : 50mm

Q : 40) Unreinforced buttress providing lateral support to the free standing masonry wall should project at least by

A : one-eighth of the effective height of the wall

B : one eighth of the actual height of the wall

C : one-sixth of the effective height of the wall

D : one-sixth of the actual height of the wall

Q : 41) If the opening in a load bearing wall extends for a full height of the wall, dividing the wall into two portions, the portions should be reinforced with horizontal reinforcement.

A : 6mm diameter bars at not more than 400mm intervals

B : 6mm diameter bars at not more than 600mm intervals

C : 8mm diameter bars at not more 400mm intervals

D : 8mm diameter bars at not more than 600mm intervals

Q : 42) Bands in masonry are provided to strengthen the masonry work. These are provided as

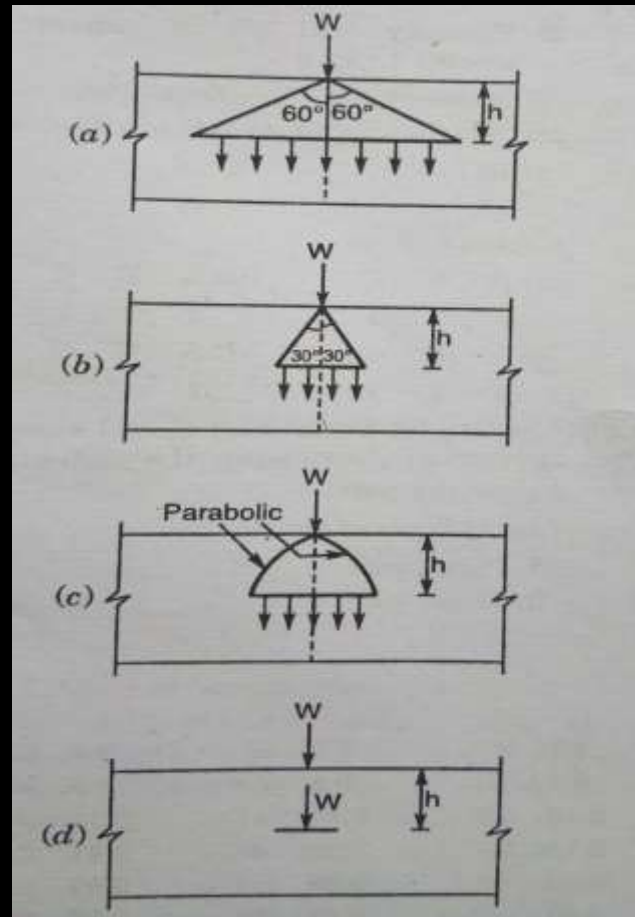
A : Lintel band at lintel level in partition wall

B : Roof band below the roof level of reinforced brick slab on bearing walls, provided slabs are continuous

C : Gable band at the top of gable masonry below the purlins

D : None of the above

Q : 43) Which one of the following figures shows the permitted depression of concentrated load in masonry structure?



Q : 44) Consider the following statements:

ASSERTION(A): in masonry, bricks are joined together by cement mortar.

REASON(R): cement mortar adheres more effectively to brick surface than any other material

- A) Both A & R is correct and R is the correct explanation of A
- B) Both A & R is correct and R is not the correct explanation of A
- C) A is true but R is false
- D) A is false but R is true

Q : 45) Match list1 with list 2 and select the correct answer using the codes given below the sts:

List1:(load bearing walls)	List 2 (slenderness ratio limit)
A)masonry walls set in cement mortar 1:6	1. 12
B)masonry walls set in cement lime mortar 1:2:9	2. 18
C)masonry walls in lime mortar	3. 20
	4. 24

codes:

A : 1, 2, 4

B : 2, 2, 1

C : 1, 2, 1

D : 1, 1, 2

Q : 46) Match list 1 with list 2 and select the correct answer using the codes given below the lists

List 1 (type of wall)	List 2 (Description)
A) Panel wall	1. An exterior non load bearing wall in framed construction subjected to lateral loads.
B) Shear wall	2. A wall designed to carry horizontal forces acting in its plane
C) Veneered wall	3. A wall in which facing is attached to backing but the two not so bonded as to result in a common action under load.
D) Cavity wall	A wall in which facing and backing of two different materials are bonded together to ensure common action under load. Codes:

Codes

(a) 1, 2, 3, 4

(b) 2, 1, 3, 4

(c) 2, 1, 4, 3

(d) 1, 2, 4, 3

Q : 47) Assertion(A): Longitudinal reinforcement in RCC columns should not be less than 0.8 per cent

Reason(R): Creep and shrinkage of concrete under sustained loading tend to transfer load to the reinforcement, with a consequent increase in stress in reinforcement, even maybe upto yield level.

A : Both A & R is correct and R is the correct explanation of A

B : Both A & R is correct and R is not the correct explanation of A

C : A is true but R is false

D : A is false but R is true

Q : 48) Assertion(A): For a triangular retaining wall of h/b ratio equal to \sqrt{p} (p is the specific gravity of the material of the retaining wall), the maximum stress on the base is two times the average stress , whether the reservoir is full or empty.

Reason(R): The eccentricity of the load on the base of the given retaining wall is $b/6$ whether the reservoir is full or empty.

A : Both A & R is correct and R is the correct explanation of A

B : Both A & R is correct and R is not the correct explanation of A

C : A is true but R is false

D : A is false but R is true

Q : 49) Assertion(A): Providing bend tendons rather than straight tendons is better arrangement in prestressed beams.

Reason(R): The bend tendons will exert an upward pressure on the concrete beam and will, therefore, counteract a part of the downward external loading.

A : Both A & R is correct and R is the correct explanation of A

B : Both A & R is correct and R is not the correct explanation of A

C : A is true but R is false

D : A is false but R is true

Q : 50) Assertion(A): The profile of tendons in a prestressed beam follows the shape of the bending moment diagram for the given external loads.

Reason(R): The bent tendons offer effective considerable upward force.

A : Both A & R is correct and R is the correct explanation of A

B : Both A & R is correct and R is not the correct explanation of A

C : A is true but R is false

D : A is false but R is true

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