Concrete Technology and Design

Question No. 01

The temperature reinforcement in the vertical slab of a T-shaped R.C. retaining wall is

(A) Not needed
(B) Provided equally on inner and front faces
(C) Provided more on inner face than on front face
(D) Provided more on front face than on inner face
Answer: Option D

Question No. 02

Bulking of sand is maximum if moisture content is about

(A) 2 %
(B) 4 %
(C) 6 %
(D) 10 %
Answer: Option B

Question No. 03

Diagonal tension in a beam

(A) Is maximum at neutral axis
(B) Decreases below the neutral axis and increases above the neutral axis
(C) Increases below the neutral axis and decreases above the neutral axis
(D) Remains same
Answer: Option C

Question No. 04

According to IS: 4561978, the column or the strut is the member whose effective length is greater than

(A) The least lateral dimension
(B) 2 times the least lateral dimension
(C) 3 times the least lateral dimension
(D) 4 times the least lateral dimension
Answer: Option C

Question No. 05

When shear stress exceeds the permissible limit in a slab, then it is reduced by

(A) Increasing the depth
(B) Providing shear reinforcement
(C) Using high strength steel
(D) Using thinner bars but more in number
Answer: Option A

Question No. 06

The diameter of ties in a column should be

(A) More than or equal to one fourth of diameter of main bar
(B) More than or equal to 5 mm
(C) More than 5 mm but less than one-fourth of diameter of main bar
(D) More than 5 mm and also more than one-fourth of diameter of main bar

Answer: Option D

Question No. 07

In counterfort retaining walls, the main reinforcement in the stem at support is

(A) Not provided
(B) Provided only on inner face
(C) Provided only on front face
(D) Provided both on inner and front faces

Answer: Option B

Question No. 08

Due to shrinkage stresses, a simply supported beam having reinforcement only at bottom tends to

(A) Deflect downward
(B) Deflect upward
(C) Deflect downward or upward
(D) None of the above

Answer: Option A

Question No. 09

The purpose of reinforcement in pre-stressed concrete is

(A) To provide adequate bond stress
(B) To resist tensile stresses
(C) To impart initial compressive stress in concrete
(D) All of the above

Answer: Option C

Question No. 10

Select the correct statement

(A) Elastic modulus of high tensile steel is nearly the same as that of mild steel
(B) Elastic modulus of high tensile steel is more than that of mild steel
(C) Carbon percentage in high carbon steel is less than that in mild steel
(D) High tensile steel is cheaper than mild steel

Answer: Option A

Question No. 11

To minimise the effect of differential settlement, the area of a footing should be designed for

(A) Dead load only
(B) Dead load + live load
(C) Dead load + fraction of live load

(D) Live load + fraction of dead load

Answer: Option C

Question No. 12

Due to circumferential action of the spiral in a spirally reinforced column

(A) Capacity of column is decreased

(B) Ductility of column reduces

(C) Capacity of column is decreased but ductility of column increases

(D) Both the capacity of column and ductility of column increase

Answer: Option D

Question No. 13

For concreting of heavily reinforced sections without vibration, the workability of concrete expressed as compacting factor should be

(A) 0.75 - 0.80

(B) 0.80 - 0.85

(C) 0.85 - 0.92

(D) Above 0.92

Answer: Option D

Question No. 14

Workability of concrete is directly proportional to

(A) Aggregate cement ratio

(B) Time of transit

(C) Grading of the aggregate

(D) All of above

Answer: Option C

Question No. 15

Which of the following statements is incorrect?

(A) Minimum cross sectional area of longitudinal reinforcement in a column is 0.8%

(B) Spacing of longitudinal bars measured along the periphery of column should not exceed 300 mm

(C) Reinforcing bars in a column should not be less than 12 mm in diameter

(D) The number of longitudinal bars provided in a circular column should not be less than four

Answer: Option D

Question No. 16

Critical section for shear in case of flat slabs is at a distance of

(A) Effective depth of slab from periphery of column/drop panel

(B) d/2 from periphery of column/capital/ drop panel

(C) At the drop panel of slab

(D) At the periphery of column

Answer: Option B

Question No. 17

For road pavements, the cement generally used, is

(A) Ordinary Portland cement
(B) Rapid hardening cement
(C) Low heat cement
(D) Blast furnace slag cement

Answer: Option B

Question No. 18

Pick up the incorrect statement from the following:

(A) Space between the exterior walls of a warehouse and bag piles should be 30 cm
(B) Cement bags should preferably be piled on wooden planks
(C) Width and height of the pile should not exceed 3 m and 2.70 m respectively
(D) None of these

Answer: Option D

Question No. 19

For a slab supported on its four edges with corners held down and loaded uniformly, the Marcus correction factor to the moments obtained by Grashoff Rankine's theory

(A) Is always less than 1
(B) Is always greater than 1
(C) Can be more than 1
(D) Can be less than 1

Answer: Option A

Question No. 20

Addition of pozzolana to ordinary port land cement, causes

(A) Decrease in early strength
(B) Reduction in chemical action with sulphates
(C) Increase in shrinkage
(D) All the above

Answer: Option D

Question No. 21

Pick up the correct statement from the following:

(A) The maximum size of a coarse aggregate, is 75 mm and minimum 4.75 mm
(B) The maximum size of the fine aggregate, is 4.75 mm and minimum 0.075 mm
(C) The material having particles of size varying from 0.06 mm to 0.002 mm, is known as silt
(D) All the above

Answer: Option D

Question No. 22

In a counterfort retaining wall, the main reinforcement is provided on the

(i) Bottom face in front counterfort
(ii) Inclined face in front counterfort

(iii) Bottom face in back counterfort

(iv) Inclined face in back counterfort

The correct answer is

(A) (i) and (ii),

(B) (ii) and (iii)

(C) (i) and (iv)

(D) (iii) and (iv)

Answer: Option C

Question No. 23

For construction of structures in sea water, the cement generally preferred to, is

(A) Portland-pozzolana cement

(B) Quick setting cement

(C) Low heat Portland cement

(D) Rapid hardening cement

Answer: Option A

Question No. 24

Curing of pavements, floors, roofs and slabs, is done by

(A) Membrane method

(B) Ponding method

(C) Covering surface with bags

(D) Sprinkling water method

Answer: Option B

Question No. 25

The centroid of compressive force, from the extreme compression fiber, in limit state design lies at a distance of

(A) 0.367 x_u

(B) 0.416 x_u

(C) 0.446 x_u

(D) 0.573 x_u

Where x_u is the depth of neutral axis at the limit state of collapse

Answer: Option B

Question No. 26

Pick up the correct statement from the following:

(A) Construction joints are necessarily planned for their locations

(B) Expansion joints are provided to accommodate thermal expansion

(C) Construction joints are provided to control shrinkage cracks

(D) All the above

Answer: Option D

Question No. 27

The bulk density of aggregates, depends upon

(A) Shape
(B) Grading
(C) Compaction
(D) All the above
Answer: Option D

Question No. 28

In symmetrically reinforced sections, shrinkage stresses in concrete and steel are respectively

(A) Compressive and tensile
(B) Tensile and compressive
(C) Both compressive
(D) Both tensile
Answer: Option B

Question No. 29

The main object of compaction of concrete, is:

(A) To eliminate air holes
(B) To achieve maximum density
(C) To provide intimate contact between the concrete and embedded materials
(D) All the above
Answer: Option D

Question No. 30

Which of the following has high tensile strength?

(A) Plain hot rolled wires
(B) Cold drawn wires
(C) Heat treated rolled wires
(D) All have same tensile strength
Answer: Option B

Question No. 31

Pick up the incorrect statement from the following:

(A) The degree of grinding of cement, is called fineness
(B) The process of changing cement paste into hard mass, is known as setting of cement
(C) The phenomenon by virtue of which cement does not allow transmission of sound, is known as soundness of cement
(D) The heat generated during chemical reaction of cement with water, is known as heat of hydration
Answer: Option C

Question No. 32

Concrete gains strength due to

(A) Chemical reaction of cement with sand and coarse aggregates
(B) Evaporation of water from concrete
(C) Hydration of cement

(D) All the above

Answer: Option C

Question No. 33

To determine the modulus of rupture, the size of test specimen used is

(A) 150 × 150 × 500 mm

(B) 100 × 100 × 700 mm

(C) 150 × 150 × 700 mm

(D) 100 × 100 × 500 mm

Answer: Option C

Question No. 34

Tricalcium aluminate (C_3A)

(A) Reacts fast with water

(B) Generates less heat of hydration

(C) Causes initial setting and early strength of cement

(D) Does not contribute to develop ultimate strength

Answer: Option B

Question No. 35

If the various concrete ingredients i.e. cement, sand and aggregates are in the ratio of 1:3:6, the grade of concrete, is

(A) *M* 100

(B) *M* 150

(C) *M* 200

(D) *M* 250

Answer: Option A

Question No. 36

Admixtures which cause early setting and hardening of concrete are called

(A) Workability admixtures

(B) Accelerators

(C) Retarders

(D) Air entraining agents

Answer: Option B

Question No. 37

Pick up the correct statement from the following:

(A) Sand stones may be divided into calcareous, siliceous and ferruginous sand stones

(B) Concrete using sand stones, cracks due to excessive shrinkage

(C) Broken bricks produce a concrete having good fire resisting qualities

(D) All the above

Answer: Option D

Question No. 38

Pick up the incorrect statement from the following:

(A) Admixtures accelerate hydration
(B) Admixtures make concrete water proof
(C) Admixtures make concrete acid proof
(D) Admixtures give high strength

Answer: Option A

Question No. 39

For a reinforced concrete section, the shape of shear stress diagram is

(A) Wholly parabolic
(B) Wholly rectangular
(C) Parabolic above neutral axis and rectangular below neutral axis
(D) Rectangular above neutral axis and parabolic below neutral axis

Answer: Option C

Question No. 40

Allowable shear strength of concrete, depends upon

(A) Shear strength
(B) Tensile strength
(C) Compressive strength
(D) None of these

Answer: Option A

Question No. 41

In slump test, each layer of concrete is compacted by a steel rod 60 cm long and of 16 mm diameter for

(A) 20 times
(B) 25 times
(C) 30 times
(D) 50 times

Answer: Option B

Question No. 42

The individual variation between test strength of sample should not be more than

(A) ±5 % of average
(B) ± 10 % of average
(C) ± 15 % of average
(D) ±20 % of average

Answer: Option C

Question No. 43

Pick up the incorrect statement from the following. For performing compressive strength test of cement

(A) Cement and standard sand mortar are used in the ratio of 1 : 3

(B) Water is added at the rate of (P/4) + 3.0 percentage of water where P is the percentage of water for standard consistency
(C) A cube mould of 10 cm × 10 cm × 10 cm is used
(D) The prepared moulds are kept in a atmosphere of 50% relative humidity
Answer: Option A

Question No. 44

Pick up the incorrect statement from the following:

(A) Concrete for which preliminary tests are conducted, is called controlled concrete
(B) Bulking of sand depends upon the fineness of grains
(C) Concrete mix 1 : 6 : 12, is used for mass concrete in piers
(D) All the above
Answer: Option D

Question No. 45

The slab is designed as one way if the ratio of long span to short span is

(A) Less than 1
(B) Between 1 and 1.5
(C) Between 1.5 and 2
(D) Greater than 2
Answer: Option D

Question No. 46

For the construction of cement concrete dams, the maximum permissible size of the aggregates, is

(A) 40 mm
(B) 50 mm
(C) 60 mm
(D) 70 mm
Answer: Option A

Question No. 47

Pick up the incorrect statement from the following:

(A) With passage of time, the strength of cement increases
(B) With passage of time, the strength of cement decreases
(C) After a period of 24 months, the strength of cement reduces to 50%
(D) The concrete made with storage deteriorated cement, gains strength with time
Answer: Option A

Question No. 48

The load carrying capacity of a helically reinforced column as compared to that of a tied column is about

(A) 5 % less
(B) 10 % less
(C) 5 % more
(D) 10 % more

Answer: Option C

Question No. 49

To hydrate 500kg of cement full water needed, is

(A) 100 kg
(B) 110 kg
(C) 120 kg
(D) 130 kg

Answer: Option D

Question No. 50

Pick up the correct statement from the following:

(A) A highly absorptive aggregate reduces the workability of concrete considerably
(B) The specific gravity of aggregate is important for the determination of the moisture content
(C) The absorption and porosity of an aggregate influence the property of the concrete
(D) All the above

Answer: Option D

Question No. 51

In a counterfort retaining wall, the main reinforcement in the stem at mid span is provided on

(A) Front face only
(B) Inner face only
(C) Both front face and inner face
(D) None of the above

Answer: Option A

Question No. 52

Under normal conditions using an ordinary cement, the period of removal of the form work, is:

(A) 7 days for beam soffits
(B) 14 days for bottom slabs of spans 4.6 m and more
(C) 21 days for bottom beams over 6 m spans
(D) All the above

Answer: Option D

Question No. 53

Water cement ratio is generally expressed in volume of water required per

(A) 10 kg
(B) 20 kg
(C) 30 kg
(D) 50 kg

Answer: Option D

Question No. 54

The minimum cover in a slab should neither be less than the diameter of bar nor less than

(A) 10 mm

(B) 15 mm
(C) 25 mm
(D) 13 mm
Answer: Option B

Question No. 55

To ensure constant moisture content in aggregates

(A) Area of each aggregate pile should be large
(B) Height of each aggregate pile should not exceed 1.50 m
(C) Aggregate pile should be left for 24 hours before aggregates are used
(D) All the above
Answer: Option D

Question No. 56

Pick up the correct statement from the following:

(A) Cement should be mixed for at least one minute
(B) 10% of water is placed in the rotating drum before adding dry material
(C) 10% of water is added after placing the other ingredients in the drum
(D) All the above
Answer: Option D

Question No. 57

The average permissible stress in bond for plain bars in tension is

(A) Increased by 10% for bars in compression
(B) Increased by 25% for bars in compression
(C) Decreased by 10% for bars in compression
(D) Decreased by 25% for bars in compression
Answer: Option B

Question No. 58

Concrete mainly consists of

(A) Cement
(B) Aggregates
(C) Water
(D) All the above
Answer: Option D

Question No. 59

For the construction of thin R.C.C. structures, the type of cement to be avoided, is

(A) Ordinary Portland cement
(B) Rapid hardening cement
(C) Low heat cement
(D) Blast furnace slag cement
Answer: Option D

Question No. 60

Which of the following R.C. retaining walls is suitable for heights beyond 6 m?

(A) L-shaped wall
(B) T-shaped wall
(C) Counterfort type
(D) All of the above
Answer: Option C

Question No. 61

For batching 1:3:6 concrete mix by volume, the ingredients required per bag of 50 kg cement, are:

(A) 70 litres of sand and 120 litres of aggregates
(B) 70 kg of sand and 140 litres of aggregates
(C) 105 litres of sand and 140 litres of aggregates
(D) 105 litres of sand and 210 litres of aggregates
Answer: Option D

Question No. 62

A concrete using an air entrained cement

(A) Has strength less than 10% to 15%
(B) Has more resistance to weathering
(C) Is more plastic and workable
(D) Is free from segregation and bleeding
Answer: Option C

Question No. 63

In the design of a front counterfort in a counterfort retaining wall, the main reinforcement is provided on

(i) Bottom face near counterfort
(ii) Top face near counterfort
(iii) Bottom face near centre of span
(iv) Top face near centre of span
The correct answer is

(A) Only (i)
(B) Only (ii)
(C) Both (i) and (iv)
(D) Both (ii) and (iii)
Answer: Option C

Question No. 64

Pick up the correct statement from the following:

(A) Segregation is necessary for a workable concrete
(B) Consistency does not affect the workability of concrete
(C) If the concrete mix is dry, the slump is maximum
(D) None of these
Answer: Option D

Question No. 65

The surface where two successive placements of concrete meet, is known as

(A) Contraction joint
(B) Expansion joint
(C) Construction joint
(D) Both (a) and (b)

Answer: Option C

Question No. 66

A beam curved in plan is designed for

(A) Bending moment and shear
(B) Bending moment and torsion
(C) Shear and torsion
(D) Bending moment, shear and torsion

Answer: Option D

Question No. 67

Pick up the correct statement from the following:

(A) Water cement paste hardens due to hydration
(B) During hardening cement binds the aggregates together
(C) Cement provides strength, durability and water tightness to the concrete
(D) All the above

Answer: Option D

Question No. 68

'Ware house pack' of cement means

(A) Full capacity of the ware house
(B) Pressure exertion of the bags of upper layers
(C) Pressure compaction of the bags on lower layers
(D) Packing the ware house

Answer: Option C

Question No. 69

High carbon content in the steel causes

(A) Decrease in tensile strength but increase in ductility
(B) Increase in tensile strength but decrease in ductility
(C) Decrease in both tensile strength and ductility
(D) Increase in both tensile strength and ductility

Answer: Option B

Question No. 70

If the engineer-in-charge approves, the 10 cm cubes may be used for the work test of concrete provided maximum nominal size of aggregate, does not exceed

(A) 10 cm
(B) 15 cm

(C) 20 cm
(D) 25 cm
Answer: Option C

Question No. 71

Particles of 0.002 mm size are that of

(A) Clay
(B) Sand
(C) Gravel
(D) None of these
Answer: Option A

Question No. 72

Ultimate strength of cold drawn high steel wires

(A) Increases with increase in diameter of bar
(B) Decreases with increase in diameter of bar
(C) Does not depend on diameter of bar
(D) None of the above
Answer: Option B

Question No. 73

The cement whose strength is a little lower than the ordinary cement during the first three months but attains afterwards the same strength, is known as

(A) Low-heat Portland cement
(B) Rapid hardening Portland cement
(C) Portland blast slag cement
(D) Portland pozzolana cement
Answer: Option A

Question No. 74

The dimensions of a 35 litre forma for measuring aggregates by volume, are:

(A) length 30 cm, breadth 25 cm, height 30 cm
(B) length 39 cm, breadth 25 cm, height 32 cm
(C) length 27 cm, breadth 27 cm, height 48 cm
(D) length 220 cm, breadth 25 cm, height 40 cm
Answer: Option C

Question No. 75

Ratio of permissible stress in direct compression and bending compression is

(A) Less than 1
(B) Between 1 and 1.5
(C) Between 1.5 and 2.0
(D) Greater than 2
Answer: Option A

Question No. 76

Concrete containing

(A) Siliceous aggregates, has higher co-efficient of expansion
(B) Igneous aggregates, has intermediate coefficient of expansion
(C) Lime stones, has lowest co-efficient of expansion
(D) All the above
Answer: Option D

Question No. 77

The lower water cement ratio in concrete, introduces

(A) Smaller creep and shrinkage
(B) Greater density and smaller permeability
(C) Improved frost resistance
(D) All the above
Answer: Option D

Question No. 78

In T-shaped R C. retaining walls, the main reinforcement in the stem is provided on

(A) The front face in one direction
(B) The front face in both directions
(C) The inner face in one direction
(D) The inner face in both directions
Answer: Option C

Question No. 79

The aggregate containing moisture in pores and having its surface dry, is known as

(A) Moist aggregates
(B) Very dry aggregates
(C) Dry aggregates
(D) Saturated surface dry aggregate
Answer: Option D

Question No. 80

Pick up the correct statement from the following:

(A) Construction joints in columns are provided a few cm below the junction of beam
(B) Construction joints in columns are provided at the bottom hunching
(C) Construction joints in beams and slabs are provided within middle third
(D) All the above
Answer: Option D

Question No. 81

According to ISI recommendations, the maximum depth of stress block for balanced section of a beam of effective depth *d* is

(A) 0.43 *d*
(B) 0.55 *d*

(C) 0.68 *d*
(D) 0.85 *d*
Answer: Option A

Question No. 82

Pick up the correct proportions of chemical ingredients of cement

(A) Lime : Silica : Alumina : Iron oxide : 63 : 22 : 6 : 3
(B) Silica : Lime : Alumina : Iron oxide : 63 : 22 : 6 : 3
(C) Alumina : Silica : Lime : Iron oxide : 63 : 22 : 6 : 3
(D) Iron oxide : Alumina : Silica : Lime : 63 : 22 : 6 : 3
Answer: Option A

Question No. 83

Internal friction between the ingredients of concrete, is decreased by using

(A) Less water
(B) Fine aggregates
(C) Rich mix
(D) More water and coarse aggregates
Answer: Option D

Question No. 84

Pick up the correct statement from the following:

(A) The quality of water governs the strength of concrete
(B) 10% excess of water reduces the strength of concrete by 15%
(C) 30% excess of water reduces the strength of concrete by 50%
(D) All the above
Answer: Option D

Question No. 85

In pre-stressed concrete

(A) Forces of tension and compression change but lever arm remains unchanged
(B) Forces of tension and compressions remain unchanged but lever arm changes with the moment
(C) Both forces of tension and compression as well as lever arm change
(D) Both forces of tension and compression as well as lever arm remain unchanged
Answer: Option B

Question No. 86

Pick up the correct statement from the following:

(A) Lime in excess, causes the cement to expand and disintegrate
(B) Silica in excess, causes the cement to set slowly
(C) Alumina in excess, reduces the strength of the cement
(D) All the above
Answer: Option D

Question No. 87

If the effective plan area of a warehouse is 54 sq. m, and maximum height of piles permitted is 270 cm, the number of cement bags to be stored, is

(A) 2000 bags
(B) 2200 bags
(C) 2400 bags
(D) 2700 bags
Answer: Option D

Question No. 88

The property of fresh concrete, in which the water in the mix tends to rise to the surface while placing and compacting, is called

(A) Segregation
(B) Bleeding
(C) Bulking
(D) Creep
Answer: Option B

Question No. 89

Workability of concrete for a given water content is good if the aggregates, are

(A) Rounded aggregate
(B) Irregular aggregate
(C) Angular aggregate
(D) Flaky aggregates
Answer: Option A

Question No. 90

For preparing ordinary concrete, the quantity of water used, is

(A) 5% by weight of aggregates plus 20% of weight of cement
(B) 10% by weight of aggregates plus 10% of weight of cement
(C) 5% by weight of aggregates plus 30% of weight of cement
(D) 30% by weight of aggregates plus 10% of weight of cement
Answer: Option C

Question No. 91

Finer grinding of cement

(A) Affects only the early development of strength
(B) Affects only the ultimate strength
(C) Both (A) and (B)
(D) Does not affect the strength
Answer: Option A

Question No. 92

The light weight aggregates are obtained from

(A) Sedimentary rocks

(B) Metamorphic rocks
(C) Igneous rocks
(D) Volcanic source
Answer: Option D

Question No. 93

The aggregate impact value of the aggregate used in

(A) Building concrete is less than 45
(B) Road pavement concrete is less than 30
(C) Runway concrete is less than 30
(D) All the above
Answer: Option D

Question No. 94

For walls, columns and vertical faces of all structural members, the form work is generally removed after

(A) 24 to 48 hours
(B) 3 days
(C) 7 days
(D) 14 days
Answer: Option A

Question No. 95

Efflorescence in cement is caused due to an excess of

(A) Alumina
(B) Iron oxide
(C) Silica
(D) Alkalis
Answer: Option D

Question No. 96

For given workability the grading requiring the least amount of water is one that gives

(A) Greatest surface area for the given cement and aggregates
(B) Least surface area for the given cement and aggregates
(C) Least weight for the given cement and aggregates
(D) Greatest weight for the given cement and aggregates
Answer: Option A

Question No. 97

Minimum pitch of transverse reinforcement in a column is

(A) The least lateral dimension of the member
(B) Sixteen times the smallest diameter of longitudinal reinforcement bar to be tied
(C) Forty-eight times the diameter of transverse reinforcement
(D) Lesser of the above three values
Answer: Option D

Question No. 98

Pick up the incorrect statement applicable to the field test of good cement.

(A) When one thrusts one's hand into a bag of cement, one should feel warm
(B) The colour of the cement is bluish
(C) By rubbing cement in between fingers, one should feed rough
(D) All the above
Answer: Option D

Question No. 99

An aggregate is known as cyclopean aggregate if its size is more than

(A) 4.75 mm
(B) 30 mm
(C) 60 mm
(D) 75 mm
Answer: Option D

Question No. 100

In counterfort type retaining walls

(i) The vertical slab is designed as a continuous slab
(ii) The heel slab is designed as a continuous slab
(iii) The vertical slab is designed as a cantilever
(iv) The heel slab is designed as a cantilever
The correct answer is

(A) (i) and (ii)
(B) (i)and(iv)
(C) (ii) and (iii)
(D) (iii) and (iv)
Answer: Option A

Question No. 101

Workability of concrete mix with low water cement ratio is determined by

(A) Tensile strength test
(B) Slump test
(C) Compaction factor test
(D) Flexural strength test
Answer: Option C

Question No. 102

If the average compressive strength is 4000 kg/cm^2 and standard deviation is 500, the co-efficient of variation is

(A) 10 %
(B) 12.5 %
(C) 15 %
(D) 18.5 %
Answer: Option B

Question No. 103

The effect of creep on modular ratio is

(A) To decrease it
(B) To increase it
(C) Either to decrease or to increase it
(D) To keep it unchanged

Answer: Option B

Question No. 104

The type of aggregates not suitable for high strength concrete and for pavements subjected to tension, is

(A) Rounded aggregate
(B) Irregular aggregate
(C) Angular aggregate
(D) Flaky aggregate

Answer: Option A

Question No. 105

The maximum percentage of chemical ingredient of cement is that of

(A) Magnesium oxide
(B) Iron oxide
(C) Silica
(D) Lime

Answer: Option D

Question No. 106

Select the incorrect statement

(A) The loss of pre-stress is more in pre-tensioning system than in post-tensioning system.
(B) Pre-tensioning system has greater certainty about its durability.
(C) For heavy loads and large spans in buildings or bridges, post-tensioning system is cheaper than pre-tensioning system
(D) None of the above

Answer: Option D

Question No. 107

The commercial name of white and coloured cement in India, is

(A) Colorcrete
(B) Silvicrete
(C) Snowcem
(D) All the above

Answer: Option D

Question No. 108

An excess of flaky particles in concrete aggregates

(A) Decreases the workability

(B) Increases the quantity of water and sand
(C) More than 15% are not desirable
(D) All the above
Answer: Option D

Question No. 109

Increase in the moisture content in concrete

(A) Reduces the strength
(B) Increases the strength
(C) Does not change the strength
(D) All of the above
Answer: Option A

Question No. 110

Pick up the correct statement from the following:

(A) High percentage of C_3S and low percentage of C_2S cause rapid hardening
(B) High percentage of C_3S and low percentage of C_2S make the cement less resistive to chemical attack
(C) Low percentage of C_3S and high percentage of C_2S contribute to slow hardening
(D) All the above
Answer: Option D

Question No. 111

The 28 days cube strength of mass concrete using aggregates of maximum size 5 cm for gravity dams should be

(A) Between 150 to 300 kg/cm^2
(B) Between 350 to 600 kg/cm^2
(C) Between 150 to 500 kg/cm^2
(D) Below 200 kg/cm^2
Answer: Option D

Question No. 112

Select the incorrect statement

(A) Lean mixes bleed more as compared to rich ones.
(B) Bleeding can be minimized by adding pozzolana finer aggregate
(C) Bleeding can be increased by addition 'of calcium chloride
(D) None of the above
Answer: Option D

Question No. 113

Permissible compressive strength of M 150 concrete grade is

(A) 100 kg/cm^2
(B) 150 kg/cm^2
(C) 200 kg/cm^2
(D) 250 kg/cm^2

Answer: Option C

Question No. 114

Cement used for normal concrete construction, is obtained by burning a mixture of

(A) Siliceous and argillaceous materials
(B) Argillaceous and calcareous materials
(C) Siliceous and calcareous materials
(D) Siliceous, argillaceous and calcareous materials

Answer: Option D

Question No. 115

As compared to ordinary Portland cement, high alumina cement has

(A) Higher initial setting time but lower final setting time
(B) Lower initial setting time but higher final setting time
(C) Higher initial and final setting times
(D) Lower initial and final setting times

Answer: Option A

Question No. 116

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 the above

Answer: Option D

Question No. 117

If *P*, *Y* and *Z* are the weights of cement, fine aggregates and coarse aggregates respectively and *W/C* is the water cement ratio, the minimum quantity of water to be added to first batch, is obtained by the equation

(A) $0.1P + 0.3Y + 0.1Z = W/C \times P$
(B) $0.3P + 0.1Y + 0.01Z = W/C \times P$
(C) $0.4P + 0.2Y + 0.01Z = W/C \times P$
(D) $0.5P + 0.3Y + 0.01Z = W/C \times P$

Answer: Option B

Question No. 118

Examine the following statements:

(i) Factor of safety for steel should be based on its yield stress,
(ii) Factor of safety for steel should be based on its ultimate stress,
(iii) Factor of safety for concrete should be based on its yield stress,
(iv) Factor of safety for concrete should be based on its ultimate stress.

The correct statements are

(A) (i) and (iii)
(B) (i) and (iv)

(C) (ii) and (iii)
(D) (ii) and (iv)
Answer: Option B

Question No. 119

If 20 kg of coarse aggregate is sieved through 80 mm, 40 mm, 20 mm, 10 mm, 4.75 mm, 2.36 mm, 1.18 mm, 600 micron, 300 micron and 150 micron standard sieves and the weights retained are 0 kg, 2 kg, 8 kg, 6 kg, 4 kg respectively, the fineness modulus of the aggregate, is

(A) 7.30
(B) 7.35
(C) 7.40
(D) 7.45
Answer: Option C

Question No. 120

Bulking of sand is

(A) Mixing of different sizes of sand particles
(B) Mixing of lime with sand
(C) Maximum water with sand
(D) Swelling of sand when wetted
Answer: Option D

Question No. 121

For a longitudinal reinforcing bar in a column, the minimum cover shall neither be less than the diameter of bar nor less than

(A) 15 mm
(B) 25 mm
(C) 30 mm
(D) 40 mm
Answer: Option D

Question No. 122

Workability of concrete is measured by

(A) Vicat apparatus test
(B) Slump test
(C) Minimum void method
(D) Talbot Richard test
Answer: Option B

Question No. 123

The size of fine aggregates does not exceed

(A) 2.75 mm
(B) 3.00 mm
(C) 3.75 mm
(D) 4.75 mm

Answer: Option D

Question No. 124

The main reason for providing number of reinforcing bars at a support in a simply supported beam is to resist in that zone

(A) Compressive stress
(B) Shear stress
(C) Bond stress
(D) Tensile stress

Answer: Option C

Question No. 125

Hardening of cement occurs at

(A) Rapid rate during the first few days and afterwards it continues to increase at a decreased rate
(B) Slow rate during the first few days and afterwards it continues to increase at a rapid rate
(C) Uniform rate throughout its age
(D) None of these

Answer: Option D

Question No. 126

The entrained air in concrete

(A) Increases workability
(B) Decreases workability
(C) Decreases resistance to weathering
(D) Increases strength

Answer: Option A

Question No. 127

According to IS: 4561978, the flexural strength of concrete is

(A) Directly proportional to compressive strength
(B) Inversely proportional to compressive strength
(C) Directly proportional to square root of compressive strength
(D) Inversely proportional to square root of compressive strength

Answer: Option C

Question No. 128

Slump test is done for

(A) Clay
(B) Sand
(C) Lime
(D) Concrete

Answer: Option D

Question No. 129

Di-calcium silicate (C_2S)

(A) Hydrates rapidly

(B) Generates less heat of hydration

(C) Hardens rapidly

(D) Provides less ultimate strength to cement

Answer: Option B

Question No. 130

The limits of percentage p of the longitudinal reinforcement in a column is given by

(A) 0.15% to 2%

(B) 0.8% to 4%

(C) 0.8% to 6%

(D) 0.8% to 8%

Answer: Option C

Question No. 131

The risk of segregation is more for

(A) Wetter mix

(B) Larger proportion of maximum size aggregate

(C) Coarser grading

(D) All the above

Answer: Option D

Question No. 132

Le-Chatelier's apparatus is used for testing

(A) Soundness of cement

(B) Hardness of cement

(C) Strength of cement

(D) Durability of cement

Answer: Option A

Question No. 133

According to Whitney's theory, depth of stress block for a balanced section of a concrete beam is limited to

(A) 0.43 *d*

(B) 0.537 *d*

(C) 0.68 *d*

(D) 0.85 *d*

Where *d* is effective depth of beam

Answer: Option B

Question No. 134

Construction joints are generally provided in concrete

(A) Roads

(B) Retaining walls
(C) Lining of canals
(D) All the above
Answer: Option D

Question No. 135

If a grading curve is horizontal between the portions of 20 mm I.S. Sieve and 4.75 mm I.S. Sieve, the graded aggregates do not contain

(A) 20 mm particles
(B) 10 mm particles
(C) 4.75 mm particles
(D) All the above
Answer: Option D

Question No. 136

Most common method of pre-stressing used for factory production is

(A) Long line method
(B) Freyssinet system
(C) Magnel-Blaton system
(D) Lee-Macall system
Answer: Option A

Question No. 137

C.R.R.I. charts are used to obtain a relationship between strength of concrete and

(A) Water cement ratio
(B) Workability
(C) Grading of aggregate
(D) Fineness modulus
Answer: Option A

Question No. 138

Pick up the correct statement from the following:

(A) Sand obtained from pits, is washed to remove clay and silt
(B) Sand obtained from flooded pits, need not be washed before use
(C) The chloride in sea shore sand and shingle may cause corrosion of reinforcement if the concrete is porous
(D) All the above
Answer: Option D

Question No. 139

For the design of retaining walls, the minimum factor of safety against overturning is taken as

(A) 1.5
(B) 2.0
(C) 2.5
(D) 3.0

Answer: Option B

Question No. 140

If the depth of moist sand in a cylinder is 15 cm and the depth of the sand when fully inundated with water is 12 cm, the bulking of the moist sand, is

(A) 10 %
(B) 12 %
(C) 15 %
(D) 25 %

Answer: Option D

Question No. 141

If aggregates completely pass through a sieve of size 75 mm and are retained on a sieve of size 60 mm, the particular aggregate will be flaky if its minimum dimension is less than

(A) 20.5 mm
(B) 30.5 mm
(C) 40.5 mm
(D) 50.5 mm

Answer: Option C

Question No. 142

If the foundations of all the columns of a structure are designed on the total live and dead load basis, then

(A) There will be no settlement of columns
(B) There will be no differential settlement
(C) The settlement of exterior columns will be more than interior columns
(D) The settlement of interior columns will be more than exterior columns

Answer: Option C

Question No. 143

Saw dust can be rendered chemically inert by boiling it in water containing

(A) Ferrous sulphate
(B) Potassium chloride
(C) Ammonia
(D) Nitric acid

Answer: Option A

Question No. 144

A concrete having a slump of 6.5 cm, is said to be

(A) Dry
(B) Earth moist
(C) Semi-plastic
(D) Plastic

Answer: Option D

Question No. 145

Shrinkage of concrete depends upon

(i) Humidity of atmosphere

(ii) Passage of time

(iii) Stress

The correct answer is

(A) (i) and (ii)

(B) (ii) and (iii)

(C) Only (iii)

(D) All (i), (ii) and (iii)

Answer: Option A

Question No. 146

To obtain a very high strength concrete, use very fine grained

(A) Granite

(B) Magnetite

(C) Barite

(D) Volcanic scoria

Answer: Option A

Question No. 147

Vicat apparatus is used for

(A) Fineness test

(B) Consistency test

(C) Test for setting time

(D) Test for tensile strength

Answer: Option B

Question No. 148

Which of the following losses of pre-stress occurs only in pre-tensioning and not in post-tensioning?

(A) Elastic shortening of concrete

(B) Shrinkage of concrete

(C) Creep of concrete

(D) Loss due to friction

Answer: Option A

Question No. 149

The type of aggregates of same nominal size, which contain less voids when compacted, are

(A) Rounded spherical

(B) Irregular

(C) Flaky

(D) None of these

Answer: Option A

Question No. 150

Pick up the correct statement from the following:

(A) Continuous grading is not necessary for obtaining a minimum of air voids
(B) The omission of a certain size of aggregate is shown by a straight horizontal line on the grading curve
(C) The omission of a certain size of aggregate in concrete increases the workability but also increases the liability to segregation
(D) All the above

Answer: Option D

Question No. 151

Pre-stress loss due to friction occurs

(A) Only in post-tensioned beams
(B) Only in pre-tensioned beams
(C) In both post-tensioned and pre-tensioned beams
(D) None of the above

Answer: Option A

Question No. 152

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) The slump of the concrete mix decreases due to an increase in temperature
(D) All the above

Answer: Option D

Question No. 153

In the method of voids for determination of the quantity of cement paste, it is assumed that

(A) Voids in coarse aggregates are filled by fine aggregates
(B) Voids in fine aggregates are filled by the cement paste
(C) Volume of fine aggregates is equal to total voids in coarse aggregates plus 10% extra
(D) All the above

Answer: Option D

Question No. 154

As compared to ordinary Portland cement, use of pozzolana cement

(A) Reduces workability
(B) Increases bleeding
(C) Increases shrinkage
(D) Increases strength

Answer: Option C

Question No. 155

The following proportion of the ingredients of concrete mix, is not in conformation to arbitrary method of proportioning

(A) 1 : 1 : 2
(B) 1 : 2 : 4
(C) 1 : 3 : 6
(D) 1 : 4 : 10
Answer: Option D

Question No. 156

The strength and quality of concrete, depend upon:

(A) Grading of aggregates
(B) Surface area of aggregates
(C) Shape of aggregates
(D) All the above
Answer: Option D

Question No. 157

The factor of safety for

(A) Steel and concrete are same
(B) Steel is lower than that for concrete
(C) Steel is higher than that for concrete
(D) None of the above
Answer: Option B

Question No. 158

The preliminary test is repeated if the difference of compressive strength of three test specimens, exceeds

(A) 5 kg/cm^2
(B) 8 kg/cm^2
(C) 10 kg/cm^2
(D) 15 kg/cm^2
Answer: Option D

Question No. 159

Setting time of cement increases by adding

(A) Gypsum
(B) Hydrogen peroxide
(C) Calcium chloride
(D) Sodium oxide
Answer: Option A

Question No. 160

According to IS: 4561978, the maximum reinforcement in a column is

(A) 2 %
(B) 4 %
(C) 6 %
(D) 8 %

Answer: Option C

Question No. 161

According to the recommendations of IS : 456-1978, the expansion joints

(A) Are provided where plane changes abruptly
(B) Are provided to ensure minimum resistance
(C) Do not carry reinforcement across them
(D) All the above
Answer: Option D

Question No. 162

The impurity of mixing water which affects the setting time and strength of concrete, is

(A) Sodium sulphates
(B) Sodium chlorides
(C) Sodium carbonates and bicarbonates
(D) Calcium bicarbonates
Answer: Option C

Question No. 163

If the size of panel in a flat slab is 6 m × 6 m, then as per Indian Standard Code, the widths of column strip and middle strip are

(A) 3.0 m and 1.5 m
(B) 1.5 m and 3.0 m
(C) 3.0 m and 3.0 m
(D) 1.5 m and 1.5 m
Answer: Option C

Question No. 164

Pick up the incorrect statement from the following:

(A) The bottom and top ends of slump mould are parallel to each other
(B) The axis of the mould is perpendicular to the end faces
(C) The internal surface of the mould is kept clean and free from set cement
(D) The mould is in the form of a frustum of hexagonal pyramid
Answer: Option D

Question No. 165

The concrete mix which causes difficulty in obtaining a smooth finish, possess

(A) Segregation
(B) Internal friction
(C) Hardness
(D) Bleeding
Answer: Option C

Question No. 166

While designing the pile as a column, the end conditions are nearly

(A) Both ends hinged
(B) Both ends fixed
(C) One end fixed and other end hinged
(D) One end fixed and other end free
Answer: Option C

Question No. 167

The internal dimensions of a ware house are 15 m × 5.6 m, and the maximum height of piles is 2.70 m, the maximum number of bags to be stored in two piles, are

(A) 1500 bags
(B) 2000 bags
(C) 2500 bags
(D) 3000 bags
Answer: Option D

Question No. 168

Pick up the incorrect statement from the following. While performing preliminary test on concrete

(A) Proportions of the material and water should be the same as to be used at the work site
(B) Cement should be mixed by hand in order to maintain uniformity
(C) Concrete mix should be stored in air-tight containers
(D) Concrete ingredients should be kept at a temperature of 37° ± 2°C
Answer: Option D

Question No. 169

In a spherical dome the hoop stress due to a concentrated load at crown is

(A) Compressive everywhere
(B) Tensile everywhere
(C) Partly compressive and partly tensile
(D) Zero
Answer: Option B

Question No. 170

I.S. Sieve Nos. 10 mm and 4.75 mm are generally used for grading of

(A) Coarse aggregates
(B) Fine aggregates
(C) Neither (a) nor (b)
(D) Both (a) and (b)
Answer: Option D

Question No. 171

Log Angles machine is used to test the aggregate for

(A) Crushing strength
(B) Impact value
(C) Abrasion resistance
(D) Water absorption

Answer: Option C

Question No. 172

The property of the ingredients to separate from each other while placing the concrete is called

(A) Segregation
(B) Compaction
(C) Shrinkage
(D) Bulking

Answer: Option A

Question No. 173

Pick up the correct statement from the following:

(A) Higher workability indicates unexpected increase in the moisture content
(B) Higher workability indicates deficiency of sand
(C) If the concrete mix is dry, the slump is zero
(D) All the above

Answer: Option D

Question No. 174

The process of mixing, transporting, placing and compacting concrete using Ordinary Port land Cement should not take more than

(A) 30 minutes
(B) 40 minutes
(C) 60 minutes
(D) 90 minutes

Answer: Option A

Question No. 175

The strength of concrete after one year as compared to 28 days strength is about

(A) 10 to 15% more
(B) 15 to 20% more
(C) 20 to 25% more
(D) 25 to 50% more

Answer: Option C

Question No. 176

Specified compressive strength of concrete is obtained from cube tests at the end of

(A) 3 days
(B) 7 days
(C) 21 days
(D) 28 days

Answer: Option D

Question No. 177

Pick up the incorrect statement from the following:

(A) Tricalcium silicate (C_3S) hydrates rapidly
(B) Tricalcium silicate (C_3S) generates more heat of hydration
(C) Tricalcium silicate (C_3S) develops early strength
(D) Tricalcium silicate (C_3S) has more resistance to sulphate attack
Answer: Option D

Question No. 178

If the permissible stress in steel in tension is 140 N/mm², then the depth of neutral axis for a singly reinforced rectangular balanced section will be

(A) 0.35 *d*
(B) 0.40 *d*
(C) 0.45 *d*
(D) Dependent on grade of concrete also
Answer: Option B

Question No. 179

A construction joint is provided where

(A) Bending moment is small
(B) Shear force is small
(C) The member is supported by other member
(D) All the above
Answer: Option D

Question No. 180

Sand generally contains salt if it is obtained from:

(A) Nala beds
(B) River beds
(C) Sea beds
(D) None of these
Answer: Option C

Question No. 181

According to IS: 4561978, minimum slenderness ratio for a short column is

(A) Less than 12
(B) Less than 18
(C) Between 18 and 24
(D) More than 24
Answer: Option A

Question No. 182

Water cement ratio is

(A) Volume of water to that of cement
(B) Weight of water to that of cement
(C) Weight of concrete to that of water
(D) Both (a) and (b) of the above

Answer: Option D

Question No. 183

For a concrete mix 1:3:6 and water cement ratio 0.6 both by weight, the quantity of water required per bag, is

(A) 10 kg
(B) 12 kg
(C) 14 kg
(D) 16 kg
Answer: Option C

Question No. 184

Half of the main steel in a simply supported slab is bent up near the support at a distance of 'x' from the center of slab bearing where 'x' is equal to (Where *'l'* is the span)

(A) *l*/3
(B) *l*/5
(C) *l*/7
(D) *l*/10
Answer: Option C

Question No. 185

Pick up the incorrect statement from the following:

(A) In properly graded aggregates, bulk density is more
(B) In single size aggregates, bulk density is least
(C) In single size aggregates, bulk density is maximum
(D) None of these
Answer: Option C

Question No. 186

To prevent segregation, the maximum height for placing concrete, is

(A) 100 cm
(B) 125 cm
(C) 150 cm
(D) 200 cm
Answer: Option A

Question No. 187

For a simply supported beam of span 15 m, the minimum effective depth to satisfy the vertical deflection limits should be

(A) 600 mm
(B) 750 mm
(C) 900 mm
(D) More than 1 m
Answer: Option B

Question No. 188

For compacting plain concrete road surface of thickness less than 20 cm, we use

(A) Internal vibrator
(B) Screed vibrator
(C) Form vibrator
(D) None of these

Answer: Option B

Question No. 189

Expansion joints are provided if the length of concrete structures exceeds

(A) 10 m
(B) 15 m
(C) 15 m
(D) 45 m

Answer: Option D

Question No. 190

The permissible diagonal tensile stress in reinforced brick work is

(A) About 0.1 N/mm²
(B) Zero
(C) 0.3 N/mm² to 0.7 N/mm²
(D) About 1.0 N/mm²

Answer: Option A

Question No. 191

Pick up the correct statement from the following:

(A) According to the petrological characteristics, concrete aggregates are classified as heavy weight, normal weight and light weight
(B) According to the shape of the particles, concrete aggregates are classified as rounded irregular, angular and flaky
(C) According to the surface texture of the particles, the concrete aggregates are classified as glassy, smooth, granular, rough, crystalline, honey combed and porous
(D) All the above

Answer: Option D

Question No. 192

Pick up the correct statement from the following:

(A) The concrete gains strength due to hydration of cement
(B) The concrete does not set at freezing point
(C) The strength of concrete increases with its age
(D) All the above

Answer: Option D

Question No. 193

Separation of water or water sand cement from a freshly concrete, is known

(A) Bleeding
(B) Creeping
(C) Segregation
(D) Flooding
Answer: Option A

Question No. 194

The critical section for finding maximum bending moment for footing under masonry wall is located

(A) At the middle of the wall
(B) At the edge of the wall
(C) Halfway between the middle and edge of the wall
(D) At a distance equal to effective depth of footing from the edge of the wall
Answer: Option C

Question No. 195

On a grading curve, the gap grading is represented by

(A) A horizontal line
(B) A vertical line
(C) N.W. inclined line
(D) N.E. inclined line
Answer: Option A

Question No. 196

Sinking of an intermediate support of a continuous beam

(i) Reduces the negative moment at support
(ii) Increases the negative moment at support
(iii) Reduces the positive moment at center of span
(iv) Increases the positive moment at center of span
The correct answer is

(A) (i) and (iii)
(B) (i) and (iv)
(C) (ii) and (iii)
(D) (ii) and (iv)
Answer: Option B

Question No. 197

High temperature

(A) Increases the strength of concrete
(B) Decreases the strength of concrete
(C) Has no effect on the strength of concrete
(D) None of these
Answer: Option B

Question No. 198

Horizontal construction joints in concrete walls are generally provided at

(A) Soffit level
(B) Window sill level
(C) Floor level
(D) All the above
Answer: Option D

Question No. 199

Stress strain curve of high tensile steel

(A) Has a definite yield point
(B) Does not show definite yield point but yield point is defined by 0.1% proof stress
(C) Does not show definite yield point but yield point is defined by 0.2% proof stress
(D) Does not show definite yield point but yield point is defined by 2% proof stress,
Answer: Option C

Question No. 200

Addition of pozzolana to cement causes

(A) Reduction in permeability
(B) Loss of heat of hydration
(C) Reduction in bleeding
(D) All the above
Answer: Option D

Question No. 201

Permissible compressive strength of *M* 200 concrete grade is

(A) 100 kg/cm^2
(B) 150 kg/cm^2
(C) 200 kg/cm^2
(D) 250 kg/cm^2
Answer: Option C

Question No. 202

The minimum diameter of longitudinal bars in a column is

(A) 6 mm
(B) 8 mm
(C) 12 mm
(D) 16 mm
Answer: Option C

Question No. 203

The high strength of rapid hardening cement at early stage, is due to its

(A) Finer grinding
(B) Burning at high temperature
(C) Increased lime cement

(D) Higher content of tricalcium

Answer: Option C

Question No. 204

Sand requiring a high water cement ratio, belongs to

(A) Zone I

(B) Zone II

(C) Zone III

(D) Zone IV

Answer: Option A

Question No. 205

Minimum grade of concrete to be used in reinforced concrete as per IS: 4561978 is

(A) *M* 15

(B) *M* 20

(C) *M* 10

(D) *M* 25

Answer: Option A

Question No. 206

While compacting the concrete by a mechanical vibrator, the slump should not exceed

(A) 2.5 cm

(B) 5.0 cm

(C) 7.5 cm

(D) 10 cm

Answer: Option B

Question No. 207

Non-uniform compaction may cause the concrete

(A) Porous

(B) Non-homogeneous

(C) Reduced strength

(D) All the above

Answer: Option D

Question No. 208

Modulus of rupture of concrete is a measure of

(A) Flexural tensile strength

(B) Direct tensile strength

(C) Compressive strength

(D) Split tensile strength

Answer: Option A

Question No. 209

M10 grade of concrete approximates

(A) 1 : 3 : 6 mix
(B) 1 : 1 : 2 mix
(C) 1 : 2 : 4 mix
(D) 1 : 1.5 : 3 mix
Answer: Option A

Question No. 210

Higher workability of concrete is required if the structure is

(A) Made with cement concrete
(B) Thick and reinforced
(C) Thin and heavily reinforced
(D) Thick and heavily reinforced
Answer: Option D

Question No. 211

For a cantilever of effective depth of 0.5 m, the maximum span to satisfy vertical deflection limit is

(A) 3.5 m
(B) 4 m
(C) 4.5 m
(D) 5 m
Answer: Option A

Question No. 212

The bulk density of aggregates does not depend upon:

(A) Size and shape of aggregates
(B) Specific gravity of aggregates
(C) Grading of aggregates
(D) Size and shape of the container
Answer: Option D

Question No. 213

How long will it take for the concrete to achieve 100% of its strength?

(A) 7 days
(B) 14 days
(C) 21 days
(D) 28 days
Answer: Option D

Question No. 214

A higher modular ratio shows

(A) Higher compressive strength of concrete
(B) Lower compressive strength of concrete
(C) Higher tensile strength of steel

(D) Lower tensile strength of steel

Answer: Option B

Question No. 215

For the construction of cement concrete floor, the maximum permissible size of aggregate, is

(A) 4 mm

(B) 6 mm

(C) 8 mm

(D) 10 mm

Answer: Option D

Question No. 216

The specifications of a cement bag for storage, are

(A) Weight 50 kg

(B) Height 18 cm

(C) Plan area 3000 sq. cm

(D) All the above

Answer: Option D

Question No. 217

The main reinforcement in the heel of a T-shaped R.C. retaining wall is provided on

(A) Top face perpendicular to wall

(B) Bottom face perpendicular to wall

(C) Both top and bottom faces perpendicular to wall

(D) None of the above

Answer: Option A

Question No. 218

Separation of coarse aggregates from mortar during transportation, is known

(A) Bleeding

(B) Creeping

(C) Segregation

(D) Shrinkage

Answer: Option C

Question No. 219

A flaky aggregate is said to be elongated if its length is

(A) Equal to the mean size

(B) Twice the mean size

(C) Thrice the mean size

(D) Four times the mean size

Answer: Option B

Question No. 220

Assertion A : The load factor for live load is greater than that for dead load.

Reason R : The live loads are more uncertain than dead loads.

Select your answer based on the coding system given below:

(A) Both A and R is true and R is the correct explanation of A

(B) Both A and R is true but R is not the correct explanation of A

(C) A is true but R is false

(D) A is false but R is true

Answer: Option A

Question No. 221

You are asked to construct a massive dam, the type of cement you will use, is

(A) Ordinary Portland cement

(B) Rapid hardening cement

(C) Low heat cement

(D) Blast furnace slag cement

Answer: Option C

Question No. 222

An ideal ware house, is provided

(A) Water proof masonry walls

(B) Water proof roof

(C) Few windows which remain generally closed

(D) All the above

Answer: Option D

Question No. 223

Normally pre-stressing wires are arranged in the

(A) Upper part of the beam

(B) Lower part of the beam

(C) Center

(D) Anywhere

Answer: Option B

Question No. 224

Pick up the correct statement from the following:

(A) Bulking of sand is caused due to formation of a thin film of surface moisture

(B) Fine sand bulks more than coarse sand

(C) The volume of fully saturated sand, is equal to the volume of dry and loose sand

(D) All the above

Answer: Option D

Question No. 225

The minimum percentage of chemical ingredient of cement is that of

(A) Magnesium oxide

(B) Iron oxide
(C) Alumina
(D) Lime
Answer: Option A

Question No. 226

Poisson's ratio for concrete

(A) Remains constant
(B) Increases with richer mixes
(C) Decreases with richer mixes
(D) None of the above
Answer: Option B

Question No. 227

Shrinkage in concrete can be reduced by using

(A) Low water cement ratio
(B) Less cement in the concrete
(C) Proper concrete mix
(D) All the above
Answer: Option D

Question No. 228

The shuttering of a hall measuring 4 m × 5 m, can be removed after

(A) 5 days
(B) 7 days
(C) 10 days
(D) 14 days
Answer: Option B

Question No. 229

The approximate value of the ratio between direct tensile strength and flexural strength is

(A) 0.33
(B) 0.5
(C) 0.75
(D) 1.0
Answer: Option B

Question No. 230

An aggregate is said to be flaky if its least dimension is less than

(A) 1/5th of mean dimension
(B) 2/5th of mean dimension
(C) 3/5th of mean dimension
(D) 4/5th of mean dimension
Answer: Option C

Question No. 231

Workability improved by adding

(A) Fly ash
(B) Hydrated lime
(C) Calcium chloride
(D) All the above

Answer: Option D

Question No. 232

Workability of concrete is inversely proportional to

(A) Time of transit
(B) water-cement ratio
(C) The air in the mix
(D) Size of aggregate

Answer: Option A

Question No. 233

Pick up the correct statement from the following:

(A) The free water is the amount of water added while mixing and the amount of water held on the surface of the aggregates prior to mixing
(B) The total water is the free water and the amount actually absorbed by the aggregates
(C) Neither (a) nor (b)
(D) Both (a) and (b)

Answer: Option D

Question No. 234

Inert material of a cement concrete mix, is

(A) Water
(B) Cement
(C) Aggregate
(D) None of these

Answer: Option C

Question No. 235

If a beam fails in bond, then its bond strength can be increased most economically by

(A) Increasing the depth of beam
(B) Using thinner bars but more in number
(C) Using thicker bars but less in number
(D) Providing vertical stirrups

Answer: Option B

Question No. 236

Pick up the incorrect statement from the following:

(A) A rich mix of concrete possesses higher strength than that a lean mix of desired workability with excessive quantity of water

(B) The strength of concrete decreases as the water cement ratio increases
(C) Good compaction by mechanical vibrations, increases the strength of concrete
(D) None of these
Answer: Option A

Question No. 237

Ordinary Portland cement is manufactured from

(A) Lime stone and clay
(B) Gypsum and lime
(C) Pozzolana
(D) Lime, pozzolana and clay
Answer: Option B

Question No. 238

The percentage of reinforcement in case of slabs, when high strength deformed bars are used is not less than

(A) 0.15
(B) 0.12
(C) 0.30
(D) 1.00
Answer: Option B

Question No. 239

Addition of pozzolana to cement

(A) Decreases workability
(B) Increases strength
(C) Increases heat of hydration
(D) None of these
Answer: Option D

Question No. 240

If 50 kg of fine aggregates and 100 kg of coarse aggregates are mixed in a concrete whose water cement ratio is 0.6, the weight of water required for harsh mix, is

(A) 8 kg
(B) 10 kg
(C) 12 kg
(D) 14 kg
Answer: Option C

Question No. 241

The minimum cover to the ties or spirals should not be less than

(A) 15 mm
(B) 20 mm
(C) 25 mm
(D) 50 mm

Answer: Option C

Question No. 242

According to Water-Cement Ratio Law, the strength of workable plastic concrete

(A) Depends upon the amount of water used in the mix
(B) Does not depend upon the quality of cement mixed with aggregates
(C) Does not depend upon the quantity of cement mixed with aggregates
(D) All the above
Answer: Option D

Question No. 243

Sands of zone I are:

(A) Course
(B) Medium
(C) Medium to fine
(D) Fine
Answer: Option A

Question No. 244

According to Whitney's theory, ultimate strain of concrete is assumed to be

(A) 0.03 %
(B) 0.1 %
(C) 0.3 %
(D) 3 %
Answer: Option C

Question No. 245

The condition not applicable to water cement ratio law, is

(A) Internal moisture conditions on hydration continue till complete strength is gained
(B) Concrete specimens may be tested at any temperature
(C) Concrete specimens need be of same age
(D) Concrete specimens need be of same size
Answer: Option B

Question No. 246

If the slump of a concrete mix is 60 mm, its workability is

(A) Very low
(B) Low
(C) Medium
(D) High
Answer: Option C

Question No. 247

Cube strength of controlled concrete to be used for pre-tensioned and post-tensioned work respectively should not be less than

(A) 35 MPa and 42 MPa
(B) 42 MPa and 35 MPa
(C) 42 MPa and 53 MPa
(D) 53 MPa and 42 MPa
Answer: Option B

Question No. 248

The void ratio of

(A) Single size coarse aggregate is roughly 0.45
(B) Graded coarse aggregate is roughly 0.040
(C) Fine aggregate is roughly 0.45
(D) All the above
Answer: Option D

Question No. 249

According to IS : 382-1963, a good aggregate should be

(A) Chemically inert
(B) Sufficiently strong
(C) Hard and durable
(D) All the above
Answer: Option D

Question No. 250

The compressive strength of 100 mm cube as compared to 150 mm cube is always

(A) Less
(B) More
(C) Equal
(D) None of the above
Answer: Option B

Question No. 251

The diameter of the Vicat plunger is 10 mm and its length varies from

(A) 20 mm to 30 mm
(B) 30 mm to 40 mm
(C) 40 mm to 50 mm
(D) 50 mm to 60 mm
Answer: Option C

Question No. 252

Gypsum is added for

(A) Colour
(B) Strength
(C) Controlling setting time
(D) None of these
Answer: Option C

Question No. 253

Modulus of elasticity of steel as per IS: 4561978 shall be taken as

(A) 20 kN/cm²

(B) 200 kN/cm²

(C) 200 kN/mm²

(D) 2×10^6 N/cm²

Answer: Option C

Question No. 254

The grade of concrete *M* 150 means that compressive strength of a 15 cm cube after 28 days, is

(A) 100 kg/cm^2

(B) 150 kg/cm^2

(C) 200 kg/cm^2

(D) 250 kg/cm^2

Answer: Option B

Question No. 255

The cement becomes useless if its absorbed moisture content exceeds

(A) 1 %

(B) 2 %

(C) 3 %

(D) 5 %

Answer: Option D

Question No. 256

In reinforced concrete footing on soil, the minimum thickness at edge should not be less than

(A) 100 mm

(B) 150 mm

(C) 200 mm

(D) 250 mm

Answer: Option B

Question No. 257

For preparing a test-specimen, it is necessary

(A) To mix cement and fine aggregate by dry hand

(B) To mix coarse aggregates

(C) To mix water to the cement, fine aggregates and coarse aggregates

(D) All the above

Answer: Option D

Question No. 258

For a good concrete

(A) Aggregates should be hard and durable

(B) Water should be free from organic materials

(C) Cement should be sufficient to produce the required strength

(D) All the above

Answer: Option D

Question No. 259

The design yield stress of steel according to IS: 4561978 is:

(A) 0.37 f_y

(B) 0.57 f_y

(C) 0.67 f_y

(D) 0.87 f_y

Where f_y is the characteristic yield strength of steel

Answer: Option D

Question No. 260

The process of hardening the concrete by keeping its surface moist is known

(A) Placing

(B) Wetting

(C) Curing

(D) Compacting

Answer: Option C

Question No. 261

For the construction of the retaining structures, the type of concrete mix to be used, is

(A) 1 : 3 : 6

(B) 1 : 2 : 4

(C) 1 : 1½ : 3

(D) 1 : 4 : 8

Answer: Option C

Question No. 262

The main reinforcement in the toe of a T-shaped R C. retaining wall is provided on

(i) Top face parallel to the wall

(ii) Top face perpendicular to the wall

(iii) Bottom face parallel to the wall

(iv) Bottom face perpendicular to the wall

The correct answer is

(A) Only (ii) is correct

(B) (i) and (ii) are correct

(C) (iii) and (iv) are correct

(D) Only (iv) is correct

Answer: Option D

Question No. 263

The produce impermeable concrete

(A) Thorough mixing of concrete is required

(B) Proper compaction of concrete is required

(C) Proper curing of concrete is required
(D) All the above
Answer: Option D

Question No. 264

Pozzolanic properties exist in

(A) Shales
(B) Fly ash
(C) Pumicite
(D) All the above
Answer: Option D

Question No. 265

A continuous beam is deemed to be a deep beam when the ratio of effective span to overall depth (1/*D*) is less than

(A) 1.5
(B) 2.0
(C) 2.5
(D) 3.0

Answer: Option C

Question No. 266

Pick up the correct statement from the following:

(A) The weight of ingredients of concrete mix, is taken in kilograms
(B) Water and aggregates are measured in litres
(C) 20 bags of cement make one tonne
(D) All the above
Answer: Option D

Question No. 267

If fineness modulus of sand is 2.5, it is graded as

(A) Very fine sand
(B) Fine sand
(C) Medium sand
(D) Coarse sand
Answer: Option B

Question No. 268

Maximum quantity of water needed per 50 kg of cement for *M* 15 grade of concrete is

(A) 28 liters
(B) 30 liters
(C) 32 liters
(D) 34 liters
Answer: Option C

Question No. 269

The increased cohesiveness of concrete, makes it

(A) Less liable to segregation
(B) More liable to segregation
(C) More liable to bleeding
(D) More liable for surface scaling in frosty weather

Answer: Option A

Question No. 270

Concrete is unsuitable for compaction by a vibrator if it is

(A) Dry
(B) Earth moist
(C) Semi-plastic
(D) Plastic

Answer: Option D

Question No. 271

In order to obtain the best workability of concrete, the preferred shape of aggregate is

(A) Rounded
(B) Elongated
(C) Angular
(D) All of the above

Answer: Option A

Question No. 272

Hydration of cement is due to chemical action of water with

(A) Tricalcium silicate and dicalcium silicate
(B) Dicalcium silicate and tricalcium aluminate
(C) Tricalcium aluminate and tricalcium alumino ferrite
(D) All the above

Answer: Option D

Question No. 273

An aggregate which passes through 25 mm I.S. sieve and is retained on 20 mm sieve, is said to be flaky if its least dimension is less than

(A) 22.5 mm
(B) 18.5 mm
(C) 16.5 mm
(D) 13.5 mm

Answer: Option D

Question No. 274

Approximate value of shrinkage strain in concrete, is

(A) 0.003
(B) 0.0003

(C) 0.00003
(D) 0.03
Answer: Option B

Question No. 275

For quality control of Portland cement, the test essentially done is

(A) Setting time
(B) Tensile strength
(C) Consistency
(D) All the above
Answer: Option D

Question No. 276

Strength of concrete with passage of time

(A) Increases
(B) Decreases
(C) Fluctuates
(D) Remains constant
Answer: Option A

Question No. 277

Which of the following statements is incorrect?

(A) Higher Vee-Bee time shows lower workability
(B) Higher slump shows higher workability
(C) Higher compacting factor shows higher workability
(D) None of the above
Answer: Option D

Question No. 278

To obtain cement dry powder, lime stones and shales or their slurry, is burnt in a rotary kiln at a temperature between

(A) 1100° and 1200°C
(B) 1200° and 1300°C
(C) 1300° and 1400°C
(D) 1400° and 1500°C
Answer: Option D

Question No. 279

In a pile of length *'l'*, the points of suspension from ends for lifting it are located at

(A) 0.207 *l*
(B) 0.25 *l*
(C) 0.293 *l*
(D) 0.333 *l*
Answer: Option A

Question No. 280

Curing a concrete for long period ensures better

(A) Volume stability
(B) Strength
(C) Water resistance
(D) All the above
Answer: Option D

Question No. 281

In a ring beam subjected to uniformly distributed load

(i) Shear force at mid span is zero
(ii) Shear force at mid span is maximum
(iii) Torsion at mid span is zero
(iv) Torsion at mid span is maximum
The correct answer is

(A) (i) and (iii)
(B) (i) and (iv)
(C) (ii) and (iii)
(D) (ii) and (iv)
Answer: Option A

Question No. 282

Batching error means inaccuracy in the quantity of

(A) Aggregates
(B) Cement
(C) Water
(D) All the above
Answer: Option D

Question No. 283

If the storey height is equal to length of RCC wall, the percentage increase in strength is

(A) 0
(B) 10
(C) 20
(D) 30
Answer: Option B

Question No. 284

If *X, Y* and *Z* are the fineness modulli of coarse, fine and combined aggregates, the percentage (*P*) of fine aggregates to combined aggregates, is

(A) $P = [(Z - X)/(Z - Y)] \times 100$
(B) $P = [(X - Z)/(Z - Y)] \times 100$
(C) $P = [(X - Z)/(Z + Y)] \times 100$
(D) $P = [(Z + X)/(Z - Y)] \times 100$
Answer: Option B

Question No. 285

If the depth of actual neutral axis in a beam is more than the depth of critical neutral axis, then the beam is called

(A) Balanced beam
(B) Under-reinforced beam
(C) Over-reinforced beam
(D) None of the above
Answer: Option C

Question No. 286

Proper proportioning of concrete, ensures

(A) Desired strength and workability
(B) Desired durability
(C) Water tightness of the structure
(D) All the above
Answer: Option D

Question No. 287

The relation between modulus of rupture f_{cr}, splitting strength f_{cs} and direct tensile strength f_{cl} is given by

(A) $f_{cr} - f_{cs} = f_{cl}$
(B) $f_{cr} > f_{cs} > f_{cl}$
(C) $f_{cr} < f_{cs} < f_{cl}$
(D) $f_{cs} > f_{cr} > f_{cl}$
Answer: Option B

Question No. 288

W_p and W_f are the weights of a cylinder containing partially compacted and fully compacted concrete. If the compaction factor (W_p/W_f) is 0.95, the workability of concrete is

(A) Extremely low
(B) Very low
(C) Low
(D) High
Answer: Option D

Question No. 289

Air entrainment in the concrete increases

(A) Workability
(B) Strength
(C) The effects of temperature variations
(D) The unit weight
Answer: Option A

Question No. 290

Construction joints are provided

(A) Where B.M. and S.F. are small
(B) Where the member is supported by other member
(C) At 18 m apart in huge structures
(D) All the above
Answer: Option D

Question No. 291

Maximum distance between expansion joints in structures as per IS: 456 1978 is

(A) 20 m
(B) 30 m
(C) 45 m
(D) 60 m
Answer: Option C

Question No. 292

Ordinary concrete is not used for concrete grade

(A) *M* 100
(B) *M* 150
(C) *M* 250
(D) *M* 400
Answer: Option D

Question No. 293

In a spherical dome subjected to concentrated load at crown or uniformly distributed load, the meridional force is always

(A) Zero
(B) Tensile
(C) Compressive
(D) Tensile or compressive
Answer: Option C

Question No. 294

An aggregate is said to be flaky, if its least dimension is less than

(A) 2/3 mean dimension
(B) 3/4 mean dimension
(C) 3/5 mean dimension
(D) 5/8 mean dimension
Answer: Option C

Question No. 295

The depth of footing for an isolated column is governed by

(i) Maximum bending moment
(ii) Shear force

(iii) Punching shear

The correct answer is

(A) Only (i)

(B) (i) and (ii)

(C) (i) and (iii)

(D) All (i), (ii) and (iii)

Answer: Option D

Question No. 296

While designing an air entrained concrete

(A) Water cement ratio is reduced

(B) Proportion of aggregates is reduced

(C) An allowance for the entrained air is made

(D) All the above

Answer: Option D

Question No. 297

Minimum thickness of load bearing RCC wall should be

(A) 50 mm

(B) 100 mm

(C) 150 mm

(D) 200 mm

Answer: Option B

Question No. 298

***M* 150 grade of concrete approximates**

(A) 1 : 3 : 6 mix

(B) 1 : 1 :2 mix

(C) 1 : 2 : 4 mix

(D) 1 : 1.5 : 3 mix

Answer: Option B

Question No. 299

The effect of adding calcium chloride in concrete is

(i) To increase shrinkage

(ii) To decrease shrinkage

(iii) To increase setting time

(iv) To decrease setting time

The correct answer is

(A) (i) and (iii)

(B) (i) and (iv)

(C) (ii) and (iii)

(D) (ii) and (iv)

Answer: Option B

Question No. 300

Permissible compressive strength of M 300 concrete grade is

(A) 100 kg/cm^2

(B) 150 kg/cm^2

(C) 200 kg/cm^2

(D) 300 kg/cm^2

Answer: Option D

Question No. 301

Strength of concrete increases with

(A) Increase in water-cement ratio

(B) Increase in fineness of cement

(C) Decrease in curing time

(D) Decrease in size of aggregate

Answer: Option B

Question No. 302

For ensuring quality of concrete, use

(A) Single sized aggregates

(B) Two sized aggregate

(C) Graded aggregates

(D) Coarse aggregates

Answer: Option C

Question No. 303

In working stress design, permissible bond stress in the case of deformed bars is more than that in plain bars by

(A) 10 %

(B) 20 %

(C) 30 %

(D) 40 %

Answer: Option D

Question No. 304

Workability improved by adding

(A) Air-entraining agent

(B) Foaming agent

(C) Oily-agent

(D) All the above

Answer: Option D

Question No. 305

The maximum value of hoop compression in a dome is given by

(A) wR / 4d

(B) wR/2d

(C) wR/d

(D) $2wR/d$

Where, w = load per unit area of surface of dome R = radius of curvature d = thickness of dome

Answer: Option B

Question No. 306

The rock which is not calcareous, is:

(A) Lime stone

(B) Chalk

(C) Laterite

(D) None of these

Answer: Option D

Question No. 307

A *T*-shaped retaining wall mainly consists of

(A) One cantilever

(B) Two cantilevers

(C) Three cantilevers

(D) Four cantilevers

Answer: Option C

Question No. 308

Pick up the correct statement from the following:

(A) Insufficient quantity of water makes the concrete mix harsh

(B) Insufficient quantity of water makes the concrete unworkable

(C) Excess quantity of water makes the concrete segregated

(D) All the above

Answer: Option D

Question No. 309

The fineness modulus of fine aggregate is in the range of

(A) 2.0 to 3.5

(B) 3.5 to 5.0

(C) 5.0 to 7.0

(D) 6.0 to 8.5

Answer: Option A

Question No. 310

After casting, an ordinary cement concrete on drying

(A) Expands

(B) Mix

(C) Shrinks

(D) None of these

Answer: Option C

Question No. 311

The most commonly used admixture which prolongs the setting and hardening time is

(A) Gypsum
(B) Calcium chloride
(C) Sodium silicate
(D) All of the above
Answer: Option A

Question No. 312

For given water content, workability decreases if the concrete aggregates contain an excess of

(A) Thin particles
(B) Flat particles
(C) Elongated particles
(D) All the above
Answer: Option D

Question No. 313

During erection, the pile of length *'l'* is supported by a crane at a distance of

(A) 0.207 *l*
(B) 0.293 *l*
(C) 0.707 *l*
(D) 0.793 *l*
From the driving end of pile which rests on the ground
Answer: Option C

Question No. 314

The process of proper and accurate measurement of concrete ingredients for uniformity of proportion, is known

(A) Grading
(B) Curing
(C) Mixing
(D) Batching
Answer: Option D

Question No. 315

The load factors for live load and dead load are taken respectively as

(A) 1.5 and 2.2
(B) 2.2 and 1.5
(C) 1.5 and 1.5
(D) 2.2 and 2.2
Answer: Option B

Question No. 316

The mixture of different ingredients of cement, is burnt at

(A) 1000°C

(B) 1200°C
(C) 1400°C
(D) 1600°C
Answer: Option C

Question No. 317

In case of hand mixing of concrete, the extra cement to be added is

(A) 5 %
(B) 10 %
(C) 15 %
(D) 20 %
Answer: Option B

Question No. 318

If 1500 g of water is required to have a cement paste 1875 g of normal consistency, the percentage of water is,

(A) 20 %
(B) 25 %
(C) 30 %
(D) 35 %
Answer: Option B

Question No. 319

The percentage of voids in cement is approximately

(A) 25 %
(B) 40 %
(C) 60 %
(D) 80 %
Answer: Option B

Question No. 320

Water required per bag of cement, is

(A) 7 kg
(B) 14 kg
(C) 21 kg
(D) 35 kg
Answer: Option D

Question No. 321

The recommended value of modular ratio for reinforced brick work is

(A) 18
(B) 30
(C) 40
(D) 58
Answer: Option C

Question No. 322

For an ordinary Portland cement

(A) Residual does not exceed 10% when sieved through IS Sieve No. 9
(B) Soundness varies from 5 to 10 mm
(C) Initial setting time is not less than 30 minutes
(D) Compressive stress after 7 days, is not less than 175 kg/cm^2
Answer: Option C

Question No. 323

The ratio of the diameter of reinforcing bars and the slab thickness is

(A) 1/4
(B) 1/5
(C) 1/6
(D) 1/8
Answer: Option D

Question No. 324

Pozzolana cement is used with confidence for construction of

(A) Dams
(B) Massive foundations
(C) R.C.C. structures
(D) All the above
Answer: Option D

Question No. 325

Pick up the correct statement from the following:

(A) Calcium chloride acts as a retarder
(B) Calcium chloride acts as an accelerator
(C) Gypsum (calcium sulphate) acts as a retarder
(D) Both (b) and (c)
Answer: Option D

Question No. 326

The operation of removing humps and hollows of uniform concrete surface, is known as

(A) Floating
(B) Screeding
(C) Trowelling
(D) Finishing
Answer: Option B

Question No. 327

1% of voids in a concrete mix would reduce its strength by about

(A) 5 %
(B) 10 %
(C) 15 %

(D) 20 %

Answer: Option A

Question No. 328

Permissible compressive strength of *M* 200 concrete grade is

(A) 100 kg/cm^2

(B) 150 kg/cm^2

(C) 200 kg/cm^2

(D) 250 kg/cm^2

Answer: Option C

Question No. 329

For a continuous slab of 3 m × 3.5 m size, the minimum overall depth of slab to satisfy vertical deflection limits is

(A) 50 mm

(B) 75 mm

(C) 100 mm

(D) 120 mm

Answer: Option B

Question No. 330

The most useless aggregate is one whose surface texture is

(A) Smooth

(B) Granular

(C) Glassy

(D) Honey combed and porous

Answer: Option C

Question No. 331

The shrinkage of concrete

(A) Is proportional to water content is the mix

(B) Is proportional to cement concrete

(C) Increases with age of concrete

(D) All the above

Answer: Option D

Question No. 332

The maximum thickness of concrete floor of a cement warehouse, is

(A) 10 cm

(B) 15 cm

(C) 20 cm

(D) 25 cm

Answer: Option D

Question No. 333

Too wet concrete may cause

(A) Weakness of concrete
(B) Excessive laitance
(C) Segregation
(D) All the above
Answer: Option D

Question No. 334

Maximum percentage reinforcement in case of slabs is limited to

(A) 2
(B) 4
(C) 6
(D) 8
Answer: Option B

Question No. 335

The commonly used material in the manufacture of cement is

(A) Sand stone
(B) Slate
(C) Lime stone
(D) Graphite
Answer: Option C

Question No. 336

According to I.S. : 456, the number of grades of concrete mixes, is

(A) 3
(B) 4
(C) 5
(D) 7
Answer: Option D

Question No. 337

Grading of sand causes great variation in

(A) Workability of concrete
(B) Strength of concrete
(C) Durability of concrete
(D) All the above
Answer: Option D

Question No. 338

The percentage of the aggregate of F.M. 2.6 to be combined with coarse aggregate of F.M. 6.8 for obtaining the aggregates of F.M. 5.4, is

(A) 30 %
(B) 40 %

(C) 50 %
(D) 60 %
Answer: Option C

Question No. 339

The ratio of various ingredients (cement, sand, aggregates) in concrete of grade *M* 200, is

(A) 1 : 2 : 4
(B) 1 : 3 : 6
(C) 1 : 1½ : 3
(D) 1 : 1 : 2
Answer: Option C

Question No. 340

Joints in concrete structures, are provided

(A) To reduce the tensile stresses likely to be developed due to evaporation of water
(B) To minimise the change in the dimensions of the slab
(C) To minimise the necessary cracking
(D) All the above
Answer: Option D

Question No. 341

For the construction of R.C.C. slabs, columns, beams, walls, etc. the grade of concrete mix used, is

(A) 1 : 3 : 6
(B) 1 : 1½ : 3
(C) 1 : 2 : 4
(D) 1 : 1 : 2
Answer: Option C

Question No. 342

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) Strength of concrete structure largely depends upon its workability
(D) All the above
Answer: Option D

Question No. 343

The final operation of finishing floors, is known as

(A) Screeding
(B) Floating
(C) Trowelling
(D) Finishing
Answer: Option C

Question No. 344

Transport of concrete by pumps, is done for a distance of

(A) 100 m
(B) 200 m
(C) 300 m
(D) 400 m
Answer: Option D

Question No. 345

Curing

(A) Reduces the shrinkage of concrete
(B) Preserves the properties of concrete
(C) Prevents the loss of water by evaporation
(D) All of the above
Answer: Option D

Question No. 346

The datum temperature for maturity by Plowman, is

(A) 23°C
(B) 0°
(C) - 5.6°C
(D) - 11.7°C
Answer: Option D

Question No. 347

The bulk density of aggregates, is generally expressed as

(A) tonnes/cubic metre
(B) kg/cubic metre
(C) kg/litre
(D) g/cm^3
Answer: Option C

Question No. 348

For concreting tunnel linings, transportation of concrete is done by

(A) Pans
(B) Wheel borrows
(C) Containers
(D) Pumps
Answer: Option D

Question No. 349

The factor which affects workability, is

(A) Water content and its temperature
(B) Shape and size of the aggregates
(C) Air entraining agents

(D) All the above

Answer: Option D

Question No. 350

Proper batching ensures

(A) Economy

(B) Durability

(C) Workability

(D) All the above

Answer: Option D

Question No. 351

The ratio of the length to breadth of a wooden float, is

(A) 4.5

(B) 5.5

(C) 6.5

(D) 7.5

Answer: Option D

Question No. 352

Vicat's apparatus is used for

(A) Fineness test

(B) Consistency test

(C) Setting time test

(D) Soundness test

Answer: Option B

Question No. 353

Percentage of pozzolanic material containing clay upto 80% used for the manufacture of pozzolana cement, is

(A) 30 %

(B) 40 %

(C) 50 %

(D) 60 %

Answer: Option A

Question No. 354

The grade of concrete not recommended by I.S. : 456, is

(A) *M* 100

(B) *M* 200

(C) *M* 300

(D) *M* 500

Answer: Option D

Question No. 355

The compaction of concrete, improves

(A) Density
(B) Strength
(C) Durability
(D) All the above
Answer: Option D

Question No. 356

Segregation is responsible for

(A) Honey-combed concrete
(B) Porous layers in concrete
(C) Surface scaling in concrete
(D) All the above
Answer: Option D

Question No. 357

Slump test of concrete is a measure of its

(A) Consistency
(B) Compressive strength
(C) Tensile strength
(D) Impact value
Answer: Option A

Question No. 358

Slump test of concrete is a measure of its

(A) Consistency
(B) Compressive strength
(C) Tensile strength
(D) Impact value
Answer: Option A

Question No. 359

If the effective working time is 7 hours and per batch time of concrete is 3 minutes, the output of a concrete mixer of 150 litre capacity, is

(A) 15,900 litres
(B) 16,900 litres
(C) 17,900 litres
(D) 18,900 litres
Answer: Option D

Question No. 360

An ordinary Portland cement when tested for its fineness, should not leave any residue on I.S. sieve No. 9, more than

(A) 5 %

(B) 10 %
(C) 15 %
(D) 20 %
Answer: Option B

Question No. 361

The top diameter, bottom diameter and the height of a slump mould are:

(A) 10 cm, 20 cm, 30 cm
(B) 10 cm, 30 cm, 20 cm
(C) 20 cm, 10 cm, 30 cm
(D) 20 cm, 30 cm, 10 cm
Answer: Option A