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Section : Technical

**Q.1** An activated carbon is specially treated carbon which has the property of absorbing and attracting impurities. Which of the following points is/are not among the advantages of activated carbon?

- A. It minimises the chlorine demand of treated water.
- B. It accelerates the coagulation.
- C. Its overdose is harmful.

- Ans
- 1. Only B
  - 2. A and C
  - 3. Only C
  - 4. Only A

Question ID : 7368158107

Status : Answered

Chosen Option : 1

**Q.2** Which of the following statements is/are not among the major limitations of sprinkler irrigation?

- A. Strong wind disturbs the sprinkling.
- B. It requires heavy initial investment.
- C. It minimizes the erosion of the soil.

- Ans
- 1. Only B
  - 2. A, B and C
  - 3. Only A
  - 4. Only C

Question ID : 7368158101

Status : Answered

Chosen Option : 1

**Q.3** Which one of the following is not among the types of signals classified on the basis of their function?

- 1. Shunting signals
- 2. Semaphore signals
- 3. Advance starter signals
- 4. Warner signals

Question ID : 7368158125

Status : Answered

Chosen Option : 2

**Q.4** As recommended in IS 456 match the following according to the Recommended slumps for various concrete works and select the correct answer using codes as given below.

Type of Construction	Recommended slump in mm (maximum)
----------------------	--------------------------------------

- |                           |          |
|---------------------------|----------|
| A. Pavements              | I. 75    |
| B. Unreinforced footings  | II. 50   |
| C. Reinforced foundations | III. 100 |
| D. Columns                | IV. 125  |

Question ID : 7368158115

Status : Answered

Chosen Option : 4

- Ans  1. A-I, B-II, C-III, D-IV  
 2. A-II, B-I, C-III, D-IV  
 3. A-IV, B-II, C-III, D-I  
 4. A-I, B-III, C-II, D-IV

Q.5 Which term is appropriate for the branch of physical geography which deals with the origin, distribution of water on the earth surface?

- Ans  1. Oxidation  
 2. Hydropethia  
 3. Hydrology  
 4. Hydrolysis

Question ID : 7368158102

Status : Answered

Chosen Option : 3

Q.6 In which type of foundation the length is considerably greater than its width?

- Ans  1. Raft foundation  
 2. Pile foundation  
 3. Footing  
 4. Strip foundation

Question ID : 7368158100

Status : Answered

Chosen Option : 4

Q.7 \_\_\_\_\_ is the algebraic sum of the moments of the forces on either side of the section of a loaded beam.

- Ans  1. Retaining walls  
 2. Modulus of Resilience  
 3. Shearing force  
 4. Bending moment

Question ID : 7368158157

Status : Answered

Chosen Option : 4

Q.8 Assume L is the load in Newton and A is cross-sectional area, then Stress (denoted by s) is equal to:

- Ans  1.  $s = A+L$   
 2.  $s = A*L$   
 3.  $s = L/A$   
 4.  $s = A/L$

Question ID : 7368158154

Status : Answered

Chosen Option : 3

Q.9 A 8 mm thick Copper sheet is cut with a 9 cm diameter round punch. If the punch exerts a force of 16 kN, Find the shear stress in the sheet.

- Ans  1. 9.80 MPa  
 2. 11.43 MPa  
 3. 7.08 MPa  
 4. 17.86 MPa

Question ID : 7368158149

Status : Answered

Chosen Option : 1

Q.10 According to the Soil Mechanics, which type of soil is not fully consolidated under the existing overburden pressure?

- Ans  1. Compressed soil  
 2. Normally consolidated soil  
 3. Under-consolidated soil  
 4. Pre-consolidated soil

Question ID : 7368158088

Status : Answered

Chosen Option : 1

Q.11 \_\_\_\_\_ is the normal stress when it acts into the area.

Question ID : 7368158151

Status : Answered

Chosen Option : 3

- Ans
- 1. Shear stress
  - 2. Torsional stress
  - 3. Compressive stress
  - 4. Tensile stress

Q.12 According to the assumptions of Terzaghi's One-Dimensional Consolidation Theory, which of the following statements is/are incorrect?

Question ID : 7368158089

Status : Answered

Chosen Option : 4

- A. The soil is homogeneous.
- B. The soil is 100% unsaturated.
- C. The soil is laterally confined.

- Ans
- 1. B and C
  - 2. Only A
  - 3. Only C
  - 4. Only B

Q.13 Which of the following statements is/are true about the types of gauge in Indian Railways?

Question ID : 7368158121

Status : Answered

Chosen Option : 2

- I. In Broad gauge, the clear distance between the inner faces of two rails is 1.676 m
- II. In Metre gauge, the clear distance between the inner faces of two rails is 1.240 m
- III. In Narrow gauge, the clear distance between the inner faces of two rails is 0.762m

- Ans
- 1. I, II and III
  - 2. I and III
  - 3. I and II
  - 4. Only I

Q.14 Which among the following is/are the correct assumptions in the theory of Simple Bending?

Question ID : 7368158160

Status : Answered

Chosen Option : 4

- A. The loads act perpendicular to the beam axis.
- B. The beam bends to a circular arc.
- C. The beam is initially straight of constant cross-section.

- Ans
- 1. Only A
  - 2. A, B and C
  - 3. Only B
  - 4. A and B

Q.15 A project engineer collects a sample of red soil having moist unit weight of a soil is  $18.5 \text{ kN/m}^3$ , water content available is 22% and the specific gravity of the solid of the soil is 2.85. Find the Void ratio. (Assume unit weight of water =  $9.81 \text{ kN/m}^3$ )

Question ID : 7368158094

Status : Answered

Chosen Option : 2

- Ans
- 1. 0.73
  - 2. 0.91
  - 3. 0.84
  - 4. 0.74

Q.16 \_\_\_\_\_ is an engineered material that contains cement, polymers, and glass fibers. It is mainly used in concrete products including ornamental structures, fountains, domes etc.

Question ID : 7368158135

Status : Answered

Chosen Option : 2

- Ans
- 1. Glass fiber reinforced concrete
  - 2. Polypropylene fiber reinforced
  - 3. Natural fiber reinforced concrete

**X 4. Fiber glass reinforced concrete**

**Q.17** According to the level of pressure applied, lateral earth pressure is classified into various types. Which of the following type of lateral earth pressure refers to the minimum pressure exerted by the soil on the retaining wall?

Question ID : **7368158096**

Status : **Answered**

Chosen Option : **2**

- Ans**
- 1. Earth pressure at rest
  - 2. Active earth pressure
  - 3. Passive earth pressure
  - 4. Cylindrical earth pressure

**Q.18** In the pile foundation, which type of pile act as columns and transmit the load through weak soil to a firm stratum at a greater depth?

Question ID : **7368158087**

Status : **Answered**

Chosen Option : **4**

- Ans**
- 1. Footing piles
  - 2. End bearing piles
  - 3. Compaction piles
  - 4. Friction piles

**Q.19** What is the name of the method of design of a reinforced cement structure in which optimum use of inherent strength of both steel and concrete is made?

Question ID : **7368158131**

Status : **Answered**

Chosen Option : **4**

- Ans**
- 1. RCC stress design
  - 2. Axially loaded design
  - 3. Optimum load design
  - 4. Ultimate load strength design

**Q.20** Which of the following factors affect(s) the per capita demand of water?

Question ID : **7368158110**

Status : **Answered**

Chosen Option : **3**

- A. Climatic conditions of the region.  
B. Industrial/commercial activities of the region.  
C. Population.
- Ans**
- 1. Only C
  - 2. A and C
  - 3. A, B and C
  - 4. Only A

**Q.21** If R is the radius of the curve in metres and C is the chord length in metres what would be the expression to denote versine 'V' in millimetres?

Question ID : **7368158127**

Status : **Answered**

Chosen Option : **1**

- Ans**
- 1.  $V = 127 C^2/R$
  - 2.  $V = 127 R^2/C$
  - 3.  $V = 125 C^2/R$
  - 4.  $V = 125 R^2/C$

**Q.22** A surveyor made an error during the survey of a project which is associated with his skills and vigilance. Which type of error this surveyor has committed?

Question ID : **7368158082**

Status : **Answered**

Chosen Option : **2**

- Ans**
- 1. Random errors
  - 2. Systematic errors
  - 3. Constant errors

#### ✗ 4. Blunders

Q.23 \_\_\_\_\_ is used in concrete to provide economy in the cost of material. It is used as filler only and do not react with cement and water.

- Ans
- ✗ 1. Sulphate resistant cement
  - ✗ 2. Alumina
  - ✓ 3. Aggregate
  - ✗ 4. Pozzolana

Question ID : 7368158111

Status : Answered

Chosen Option : 3

Q.24 Which apparatus is used to perform the soundness test of cement?

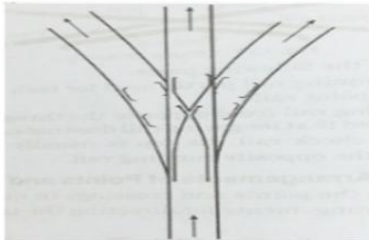
- Ans
- ✓ 1. Le-chatlier apparatus
  - ✗ 2. Vee-bee apparatus
  - ✗ 3. Slump apparatus
  - ✗ 4. Compaction apparatus

Question ID : 7368158112

Status : Answered

Chosen Option : 1

Q.25



Question ID : 7368158129

Status : Answered

Chosen Option : 1

Which of the following typical arrangements of points and crossings is being drawn in the figure shown above?

- Ans
- ✓ 1. Tandem
  - ✗ 2. Cross over
  - ✗ 3. Symmetrical split
  - ✗ 4. Double junction

Q.26 Which of the following is/are not the characteristic(s) of an ideal reinforcing material?

- A. It should be easily available in bulk and at low prices.
- B. It should not possess high tensile stress and elasticity.
- C. It should be free from loose mill scales, loose rust and coat of paints.

- Ans
- ✗ 1. Only C
  - ✗ 2. B and C
  - ✗ 3. A and B
  - ✓ 4. Only B

Question ID : 7368158117

Status : Answered

Chosen Option : 4

Q.27 According to geological classification, rocks are divided into three different categories i.e. Igneous rocks, Sedimentary rocks and Metamorphic rocks. In which category Granite, Basalt and Dolerite etc types of rocks fall?

- Ans
- ✗ 1. Sedimentary rocks
  - ✗ 2. Metamorphic rocks
  - ✓ 3. Igneous rocks
  - ✗ 4. Stratified rocks

Question ID : 7368158136

Status : Answered

Chosen Option : 3

Q.28 When a liquid rotates at constant angular velocity about a vertical axis of a rigid body:

Question ID : 7368158143

- Ans  1. the pressure varies as the square of the radial distance
2. the velocity vector remains constant at a point
3. the velocity vector varies inversely as the altitude along any vertical line
4. the pressure varies inversely as the altitude along any vertical line

Status : **Answered**  
Chosen Option : 3

**Q.29** According to Hook's law, A material is said to be elastic if it returns to its original, unloaded dimensions when load is removed. It can be expressed as:

- Ans  1. stress / strain = constant
2. stress / strain = force
3. stress + strain = constant
4. stress - strain = constant

Question ID : **7368158152**  
Status : **Answered**  
Chosen Option : 1

**Q.30** In which type of joint, plates to be fastened are placed one over the other and riveted by one or more rows of rivets?

- Ans  1. Chain joint
2. Butt joint
3. Zig-Zag joint
4. Lap joint

Question ID : **7368158159**  
Status : **Answered**  
Chosen Option : 4

**Q.31** Soil scientist collects unsaturated 200 cm<sup>3</sup> sample of soil having weight 220 g. If the dried weight of soil is 180 g. Then, find the water content available in the soil.

- Ans  1. 0.222
2. 0.176
3. 0.133
4. 0.166

Question ID : **7368158095**  
Status : **Answered**  
Chosen Option : 1

**Q.32** The four kinds of crystals in thin sections of cement clinkers, named by Tornebohm are Alite, Belite, Celite and \_\_\_\_\_.

- Ans  1. Elite
2. Delite
3. Gelite
4. Felite

Question ID : **7368158133**  
Status : **Answered**  
Chosen Option : 4

**Q.33** In the given image, Read the observation carefully which were taken during the testing of a dumpy level.

Instrument at	Staff reading on	
	P	Q
P	1.543	2.123
Q	1.121	1.750

Question ID : **7368158085**  
Status : **Answered**  
Chosen Option : 3

To what reading should the line of collimation be adjusted when the instrument was at Q?

- Ans  1. 1.146 m
2. 0.946 m
3. 1.246 m

4. 0.786 m

**Q.34** An open cylindrical tank of 2 m diameter and 4 m high, contains water upto 1.5 m depth. If the cylinder rotates about vertical axis, what angular velocity can be attained without spilling any water?

- Ans**
- 1. 12.9 radians/sec
  - 2. 10.9 radians/sec
  - 3. 9.9 radians/sec
  - 4. 11.1 radians/sec

Question ID : 7368158144

Status : Not Attempted

Chosen Option : --

**Q.35** What would be the approximate weight of rail required for a particular track if the weight of locomotive axle load is 15000 tonnes?

- Ans**
- 1. 25410 tonnes
  - 2. 39410 tonnes
  - 3. 29410 tonnes
  - 4. 35410 tonnes

Question ID : 7368158122

Status : Answered

Chosen Option : 2

**Q.36** What value of tensile stress is required to produce a strain of  $10 \times 10^{-4}$  in copper? Find the result in MPa. (Assume Young's modulus of copper = 50 GPa)

- Ans**
- 1. 150 MPa
  - 2. 50 MPa
  - 3. 200 MPa
  - 4. 500 MPa

Question ID : 7368158147

Status : Answered

Chosen Option : 2

**Q.37** Which of the following statements is/are incorrect about the Prismatic Compass?

- A. The needle is broad but it does not act as an index.
- B. The graduated ring is attached with the needle. This does not rotate along with the line of sight.
- C. The readings are taken directly seeing through the top of the glass.

- Ans**
- 1. Only A
  - 2. B and C
  - 3. Only C
  - 4. A and C

Question ID : 7368158083

Status : Answered

Chosen Option : 2

**Q.38** Which of the following statements describe(s) limitation(s) of concrete technology?

- A. Availability of concrete ingredients easily.
- B. Due to low tensile strength, concrete is required to be reinforced to avoid cracks.
- C. Monolithic character gives better appearance.
- D. The property of concrete possess high compressive strength.

- Ans**
- 1. A, B and C
  - 2. B and C
  - 3. Only B
  - 4. Only C

Question ID : 7368158141

Status : Answered

Chosen Option : 1

**Q.39** Void ratio is the ratio of the volume of the voids to the volume of the soil solids and Porosity of the soil mass is the ratio of the volume of voids to the total volume of the given soil. What would be the expression to relate these two terms? (Assume void ratio = e and porosity = n)

- Ans**
- 1.  $n = (e + 1)/e$
  - 2.  $e = n/(1+n)$
  - 3.  $n = e/(1+e)$

Question ID : 7368158097

Status : Answered

Chosen Option : 3

**X** 4.  $n = 2e^2/(1+e)$

**Q.40** Calculate the approximate specific energy of a trapezoidal channel having a bottom width of 6 metres, ratio of side slopes is 1:1 and the depth of flow at a discharge speed of 15 cubic metres per second is 1.5 metres.

- Ans**
- X** 1. 2.6
  - ✓** 2. 1.6
  - X** 3. 3.6
  - X** 4. 4.6

Question ID : 7368158130

Status : Answered

Chosen Option : 4

**Q.41** A soil engineer collects a sample of soil which having moist unit weight of a soil is 25 kN/m<sup>3</sup>, water content available is 50% and the specific gravity of the solid of the soil is 2.55. Then, what is the value of porosity of soil mass? (Assume unit weight of water = 9.81 kN/m<sup>3</sup>)

- Ans**
- X** 1. 30%
  - ✓** 2. 33%
  - X** 3. 66%
  - X** 4. 40%

Question ID : 7368158092

Status : Answered

Chosen Option : 4

**Q.42** Assume initial void ratio =  $e_0$ , final void ratio =  $e$ , initial pressure =  $p_0$  and final pressure =  $p$ . Then, what is the value of coefficient of compressibility ( $av$ )?

- Ans**
- X** 1.  $av = (e - e_0)/(p - p_0)$
  - ✓** 2.  $av = (e_0 - e)/(p - p_0)$
  - X** 3.  $av = (e_0 - e)/(p_0 - p)$
  - X** 4.  $av = (e_0 + e)/(p + p_0)$

Question ID : 7368158099

Status : Answered

Chosen Option : 1

**Q.43** As per the specifications designed by the Railway Board for trunk routes on Broad gauge tracks, the design speed for new track is \_\_\_\_\_ and the maximum speed permissible is \_\_\_\_\_.

- Ans**
- ✓** 1. 160 km/hr, 120 km/hr
  - X** 2. 200 km/hr, 120 km/hr
  - X** 3. 180 km/hr, 150 km/hr
  - X** 4. 200 km/hr, 150 km/hr

Question ID : 7368158120

Status : Answered

Chosen Option : 3

**Q.44** Which constituent of good brick earth added in small quantity during the manufacturing of bricks, to give yellow tint to bricks and decrease shrinkage?

- Ans**
- ✓** 1. Magnesia
  - X** 2. Oxide of iron
  - X** 3. Silica
  - X** 4. Alumina

Question ID : 7368158138

Status : Answered

Chosen Option : 1

**Q.45** At constant temperature, the fluid whose viscosity does not change with the rate of deformation, is called:

- Ans**
- X** 1. Real fluid
  - X** 2. Non-Newtonian fluid
  - X** 3. Ideal fluid
  - ✓** 4. Newtonian fluid

Question ID : 7368158145

Status : Answered

Chosen Option : 4

**Q.46**

Question ID : 7368158119

Status : Answered



Why steel is commonly used as good reinforcing material?

Chosen Option : 2

- A. It is cheaply available in bulk.
- B. Thermal coefficient is nearly equal to concrete.
- C. It possesses low tensile strength.
- D. It develops good bond with concrete.

Select the correct options.

- Ans
- 1. Only C
  - 2. A, B and D
  - 3. A and D
  - 4. A, B and C

Q.47 A project engineer receives a laboratory report of a sample of soil having moist unit weight of a soil is  $20.5 \text{ kN/m}^3$ , water content available is 25% and the specific gravity of the solid of the soil is 3.35. Find the dry unit weight of the soil.

Question ID : 7368158091

Status : Answered

Chosen Option : 4

- Ans
- 1.  $16.8 \text{ kN/m}^3$
  - 2.  $18.4 \text{ kN/m}^3$
  - 3.  $18.8 \text{ kN/m}^3$
  - 4.  $16.4 \text{ kN/m}^3$

Q.48 The type of concrete in which preliminary tests are performed for designing the mix and it is also used for all the seven types of grades of cement is known as:

Question ID : 7368158113

Status : Answered

Chosen Option : 4

- Ans
- 1. Nominal mix concrete
  - 2. Controlled concrete
  - 3. Ordinary concrete
  - 4. Design mix concrete

Q.49 In the Soil Mechanics and Foundation Engineering, the ratio of the density of solid to that of water at a given temperature is termed as \_\_\_\_\_ of soil solids.

Question ID : 7368158086

Status : Answered

Chosen Option : 1

- Ans
- 1. specific gravity
  - 2. porosity
  - 3. degree of saturation
  - 4. void ratio

Q.50 Match the Grade of bricks with its compressive strength (According to IS: 10719557-1970) and select the correct answer as per the codes given below.

Question ID : 7368158139

Status : Answered

Chosen Option : 4

Compressive strength	Grade
A. Not less than $140 \text{ kg/cm}^2$	I. Grade A
B. Not less than $105 \text{ kg/cm}^2$	II. Grade A-A
C. Not less than $70 \text{ kg/cm}^2$	III. Grade B
D. Not less than $35 \text{ kg/cm}^2$	IV. Grade C

- Ans
- 1. A-I, B-III, C-II, D-IV
  - 2. A-I, B-II, C-III, D-IV
  - 3. A-IV, B-II, C-III, D-I
  - 4. A-II, B-I, C-III, D-IV

Q.51

Question ID : 7368158084

In an open field two parallel pipe lines are to be connected by a reverse curve, each section having the same radius. If the centre lines are 20 m apart, and the maximum distance between tangent points is 40 m, what is the maximum allowable radius that can be used?

Status : **Answered**  
Chosen Option : 1

- Ans  1. 20 m  
 2. 40 m  
 3. 32 m  
 4. 60 m

Q.52 Which of the following statements is/are not correct as per the requirements specified by IS: 383-1970, for an ideal aggregate used for manufacturing of concrete?

Question ID : **7368158114**  
Status : **Answered**  
Chosen Option : 4

- A. It should be hard, strong and durable.  
B. It should contain flaky and elongated pieces.  
C. It should be dense, clear and free from any coating.  
D. It should consist of natural stones, gravels and sand.

- Ans  1. B and C  
 2. Only C  
 3. Only B  
 4. B and D

Q.53 The shear strength is a most important characteristic of the soil. What is/are the correct reason(s) due to which the shear resistance of the soil occurs?

Question ID : **7368158098**  
Status : **Answered**  
Chosen Option : 2

- A. Cohesion  
B. Structural resistance  
C. Friction

- Ans  1. B and C  
 2. A, B and C  
 3. Only C  
 4. A and C

Q.54 Which of the following characteristics of the rain storm can completely describe the rainfall at a place?

Question ID : **7368158103**  
Status : **Answered**  
Chosen Option : 4

- A. Intensity of the rain.  
B. Duration of the rain.  
C. Hyetograph.  
D. Frequency of the rain.

- Ans  1. A and D  
 2. A and C  
 3. Only C  
 4. A, B, C and D

Q.55 Which type of beam is supported only at one end by being built into a wall?

Question ID : **7368158156**  
Status : **Answered**  
Chosen Option : 2

- Ans  1. Overhanging beam  
 2. Cantilever beam  
 3. Curvature beam  
 4. Centroid beam

Q.56 What is the name of the process in which reducing chemical such as sulphur dioxide ( $\text{SO}_2$ ), sodium trisulphite ( $\text{NaHSO}_3$ ) and sodium sulphite ( $\text{Na}_2\text{SO}_3$ ) is added to remove unwanted residual of chlorine from water?

Question ID : **7368158105**  
Status : **Answered**  
Chosen Option : 3

- Ans  1. Chlorination  
 2. Hydrogenation

- 3. Dechlorination
- 4. Sulphurification

Q.57 \_\_\_\_\_ is the geological formation that does not yield water freely to well due to its lesser permeability.

- Ans
- 1. Aquatic permeability
  - 2. Aquifer
  - 3. Acquitard
  - 4. Aquiclude

Question ID : 7368158109

Status : Answered

Chosen Option : 4

Q.58 \_\_\_\_\_ is the crude impure iron, which is extracted from iron ores.

- Ans
- 1. Steel
  - 2. Cast iron
  - 3. Pig iron
  - 4. Wrought iron

Question ID : 7368158140

Status : Answered

Chosen Option : 2

Q.59 A train has to run on a BG track having a curvature of 3 degrees and cant of 100 mm. What would be the maximum permissible speed of this train if the allowable cant deficiency is 76 mm?

- Ans
- 1. 98.2 kmph
  - 2. 78.2 kmph
  - 3. 68.2 kmph
  - 4. 88.2 kmph

Question ID : 7368158124

Status : Answered

Chosen Option : 1

Q.60 \_\_\_\_\_ is the type of concrete in which internal stresses are intentionally induced in a planned manner such that the stresses resulting from the superimposed loads get counteracted to a desired degree.

- Ans
- 1. Post-stressed concrete
  - 2. Intra-stressed concrete
  - 3. Curvated concrete
  - 4. Pre-stressed concrete

Question ID : 7368158132

Status : Answered

Chosen Option : 4

Q.61 A 58 kN compressive load is applied to a 7 cm diameter, 2 cm tall, aluminium cylinder. Calculate value of stress in MPa.

- Ans
- 1. 20.80 MPa
  - 2. 16.50 MPa
  - 3. 15.08 MPa
  - 4. 20.08 MPa

Question ID : 7368158148

Status : Not Attempted

Chosen Option : --

Q.62 A 10 inch long silver wire is stretched to a total length of 11.50 inches. Find the value of strain.

- Ans
- 1. 0.015
  - 2. 0.15
  - 3. 0.25
  - 4. 0.025

Question ID : 7368158146

Status : Answered

Chosen Option : 2

Q.63 Which one of the following is not the cause of buckling?

Ans

Question ID : 7368158123

- 1. Due to welded rails on weak tracks
- 2. Insufficient expansion gaps at rail joints
- 3.

Due to excess tightening of bolts of the fish plates

- 4. Due to contraction of rail tracks in winter

Status : Answered  
Chosen Option : 4

Q.64 Which of the following types of chemical weathering is associated with the feldspar, which can be found in granite changing to clay?

- Ans
- 1. Oxidation
  - 2. Hydrolysis
  - 3. Hydrogenation
  - 4. Carbonation

Question ID : 7368158090  
Status : Answered  
Chosen Option : 3

Q.65 Match section I with the section II and select the correct answer using codes as given below.

**Section I (Alignment)**

- A. Zig-Zag alignment
- B. Cross country alignment
- C. Switch back development
- D. Valley alignment

**Section II (Topography)**

- I. Sags and summits in succession
- II. One slope of valley
- III. A slope with deep valleys
- IV. One steep regular slope

- Ans
- 1. A-III, B-I, C-IV, D-II
  - 2. A-I, B-II, C-III, D-IV
  - 3. A-III, B-I, C-II, D-IV
  - 4. A-I, B-II, C-IV, D-III

Question ID : 7368158128  
Status : Answered  
Chosen Option : 3

Q.66 \_\_\_\_\_ is a mechanical property of linear elastic solid materials which defines the relationship between stress and strain in a material.

- Ans
- 1. Poisson's ratio
  - 2. Lateral modulus
  - 3. Bulk modulus
  - 4. Young's modulus

Question ID : 7368158153  
Status : Answered  
Chosen Option : 4

Q.67 If H1 is height of liquid surface above the orifice top, H2 is height of liquid surface above the orifice bottom, b is width of orifice and Cd is the coefficient of discharge, what would be the expression to calculate the discharge denoted by Q?

- Ans
- 1.  $Q = 3 Cd b \sqrt{(2g)} (H_2^{3/2} - H_1^{3/2}) / 2$
  - 2.  $Q = 3 Cd b \sqrt{g} (H_1^{3/2} - H_2^{3/2}) / 2$
  - 3.  $Q = 2 Cd b \sqrt{g} (H_1^{3/2} - H_2^{3/2}) / 3$
  - 4.  $Q = 2 Cd b \sqrt{(2g)} (H_2^{3/2} - H_1^{3/2}) / 3$

Question ID : 7368158142  
Status : Answered  
Chosen Option : 4

Q.68 Which of the following is/are the property(s) of good quality of stones?

- A. Crushing strength greater than 1000kg/cm<sup>2</sup>
- B. Specific gravity should be greater than 8
- C. Stones should be well seasoned before putting into use.

- Ans
- 1. B and C
  - 2. Only A
  - 3. A, B and C

Question ID : 7368158137  
Status : Answered  
Chosen Option : 2

4. Only B

**Q.69** There are three distinct stages occur in the natural process of sludge digestion due to biological action. What is the name of the first stage in which fresh sewerage-sludge is acted upon by anaerobic and facultative bacteria's which decompose easily available food matters?

Question ID : 7368158108

Status : Answered

Chosen Option : 1

- Ans
- 1. Acid regression
  - 2. Acid fermentation
  - 3. Alkaline fermentation
  - 4. Chamber fermentation

**Q.70** Which among the following is/are the correct assumptions made in torsion formula?

Question ID : 7368158158

Status : Answered

Chosen Option : 1

- A. Material of the shaft is uniform throughout.
- B. Twist along the shaft is uniform.
- C. Plane Sections before twisting remain plane after twisting.
- D. Circular Sections before twisting remain circular even after twisting.

- Ans
- 1. A, B, C and D
  - 2. C and D
  - 3. A, B and C
  - 4. B and D

**Q.71** Which one of the following formulas is correct to express the bond stress ( $B_s$ )? Assume shear force at the section =  $Q$ . Lever arm =  $Jd$  and sum of the perimeter of bars =  $S$ .

Question ID : 7368158118

Status : Answered

Chosen Option : 3

- Ans
- 1.  $B_s = Q/(Jd+S)$
  - 2.  $B_s = Jd/(Q*S)$
  - 3.  $B_s = Q/(Jd*S)$
  - 4.  $B_s = S/(Jd*Q)$

**Q.72** \_\_\_\_\_ is the rigid dam which is constructed either with stone or brick masonry or mass concrete.

Question ID : 7368158104

Status : Answered

Chosen Option : 1

- Ans
- 1. Solid gravity dam
  - 2. Footing dam
  - 3. Buttress dam
  - 4. Sediment dam

**Q.73** The ratio of lateral strain to that of longitudinal strain which remain constant within elastic limit is called as \_\_\_\_\_.

Question ID : 7368158155

Status : Answered

Chosen Option : 4

- Ans
- 1. Modulus of rigidity
  - 2. Hook's law
  - 3. Young's modulus
  - 4. Poisson's ratio

**Q.74** What is the main disadvantage of Aeration process?

Question ID : 7368158106

Status : Answered

Chosen Option : 2

- Ans
- 1. Excessive aeration absorb too much carbon dioxide and water becomes corrosive.
  - 2. Excessive aeration absorb too much oxygen and thus water becomes corrosive.
  - 3. It removes oils and decomposes algae and other aquatic product from water.

4.

It effectively removes volatile gases which is harmful for water.

**Q.75** A soil engineer collects a sample of soil having moist unit weight of a soil is  $24.5 \text{ kN/m}^3$ , water content available is 10% and the specific gravity of the solid of the soil is 2.50. What is the degree of saturation of the soil? (Assume unit weight of water =  $9.81 \text{ kN/m}^3$ )

- Ans
- 1. 250%
  - 2. 225%
  - 3. 75%
  - 4. 150%

Question ID : 7368158093

Status : Answered

Chosen Option : 4

**Q.76** A surveyor assumes P as difference in elevation between Points X and Y having slope S. What will be the expression to calculate slope correction?

- Ans
- 1.  $P^2/2S$
  - 2.  $P^2/4S$
  - 3.  $S^2/2P$
  - 4.  $P/2S^2$

Question ID : 7368158081

Status : Answered

Chosen Option : 1

**Q.77** A 10 m aluminum flagpole is installed at  $30^\circ\text{C}$ . After 2 days, the temperature drops to  $-10^\circ\text{C}$ . How much does the height change of the flagpole (in mm)? (Assume thermal expansion coefficient for aluminum =  $23 \times 10^{-6} \text{ }^\circ\text{C}^{-1}$ )

- Ans
- 1. 7.8 mm
  - 2. 8.8 mm
  - 3. 9.5 mm
  - 4. 9.2 mm

Question ID : 7368158150

Status : Not Attempted

Chosen Option : --

**Q.78** Which of the following statements is/are true about the advantages of Pre-stressed Concrete structure?

- A. In the pre-stressed concrete structure, deflection of beams is considerably reduced.
- B. Prestressing decreases cracks in concrete under all stages of loading.
- C. Prestressed concrete requires only 1/3 rd of the concrete required for R.C.C.

- Ans
- 1. Only A
  - 2. B and C
  - 3. A, B and C
  - 4. Only C

Question ID : 7368158134

Status : Answered

Chosen Option : 3

**Q.79** The equilibrium super elevation/cant necessary for any speed is calculated from the formula:

- Ans
- 1.  $C = GR^2/127V$
  - 2.  $C = RV^2/127G$
  - 3.  $C = V^2/127GR$
  - 4.  $C = GV^2/127R$

Question ID : 7368158126

Status : Answered

Chosen Option : 4

**Q.80** As per IS: 456-1978, the concrete mixes have been designated into 7 grades. Which one out the following seven grades (given below) is not the correct grade of concrete mix?

$M_{100}$ ,  $M_{200}$ ,  $M_{250}$ ,  $M_{150}$ ,  $M_{50}$ ,  $M_{350}$ ,  $M_{300}$ .

- Ans
- 1.  $M_{100}$
  - 2.  $M_{50}$

Question ID : 7368158116

Status : Answered

Chosen Option : 2

3. M<sub>350</sub>

4. M<sub>300</sub>

Section : General Knowledge

Q.1 Which of the following fundamental rights is deleted from Indian Constitution by the 44<sup>th</sup> amendment act?

Ans  1. Right to speak

2. Right against exploitation

3. Right to vote

4. Right to property

Question ID : 7368158166

Status : Answered

Chosen Option : 4

Q.2 Which of the following Indian scientists discovered that stimuli in plants are due to electrical impulses?

Ans  1. C. V. Raman

2. J. C. Bose

3. Hargobind Khurana

4. Y. Subba Rao

Question ID : 7368158167

Status : Answered

Chosen Option : 3

Q.3 In which year National Rural Employment Guarantee Act was introduced?

Ans  1. 2010

2. 2005

3. 1999

4. 2007

Question ID : 7368158163

Status : Answered

Chosen Option : 2

Q.4 The highest rice producing state in India is:

Ans  1. West Bengal

2. Telangana

3. Tamil Nadu

4. Orissa

Question ID : 7368158161

Status : Answered

Chosen Option : 1

Q.5 Who is considered as the Father of Modern Economics?

Ans  1. P. C. Ray

2. Satyarthi

3. Adam Smith

4. Karl Marx

Question ID : 7368158164

Status : Answered

Chosen Option : 3

Q.6 Who was the Chairman of the drafting committee for Indian Constitution?

Ans  1. Indira Gandhi

2. Dr. B. R. Ambedkar

3. Sarvepalli Radha Krishnan

4. Lala Lajpat Rai

Question ID : 7368158165

Status : Answered

Chosen Option : 2

Q.7 Which South Indian actor served as Tourism Minister of India in UPA government?

Ans

Question ID : 7368158170

1. K. Chiranjeevi

2. Mammotty

3. Kamal Hassan

4. Mohan Lal

Status : **Answered**  
Chosen Option : 3

**Q.8** In which state Indian Government has decided to establish Organic farming research Institute?

**Ans**  1. Orissa

2. Tamil Nadu

3. Jharkhand

4. Sikkim

Question ID : **7368158169**  
Status : **Answered**  
Chosen Option : 3

**Q.9** Which Indian king was known as Indian Napoleon?

**Ans**  1. Tipu Sultan

2. Babar

3. Krishnadevaraya

4. Samudragupta

Question ID : **7368158162**  
Status : **Answered**  
Chosen Option : 4

**Q.10** In computer terminology, the full form of LAN is:

**Ans**  1. Local Area Network

2. Local Area Navigator

3. Local Alignment Network

4. Light Amplification Network

Question ID : **7368158168**  
Status : **Answered**  
Chosen Option : 1

Section : Reasoning

**Q.1** Russia is related to Moscow in the same way France is related to \_\_\_\_\_.

**Ans**  1. Paris

2. Rome

3. Havana

4. Cairo

Question ID : **7368158173**  
Status : **Answered**  
Chosen Option : 1

**Q.2** After starting from a point, a man walks 3 km towards East, then turning to his left he moves 3 km. After this he again turns left and moves 3 km. Which choice given below indicates the correct direction in which he is from his starting point?

**Ans**  1. East

2. North

3. South

4. West

Question ID : **7368158179**  
Status : **Answered**  
Chosen Option : 2

**Q.3** Identify the similar set of numbers.  
(482, 496, 526)

**Ans**  1. (334, 348, 378)

2. (890, 748, 923)

Question ID : **7368158172**  
Status : **Answered**  
Chosen Option : 1



3. (442, 182, 290)

4. (296, 310, 480)

Q.4 Determine the pattern and fill in the missing number.

5, 9, 17, 33, \_\_\_\_

Ans  1. 38

2. 46

3. 65

4. 36

Question ID : 7368158180

Status : Answered

Chosen Option : 3

Q.5 Student X rank fifth from the top and nineteenth from the bottom in a class. How many students are there in the class?

Ans  1. 24

2. 21

3. 23

4. 22

Question ID : 7368158176

Status : Answered

Chosen Option : 3

Q.6 Select from the given choices the letter sequence that completes the following sequence in an order.

m n \_ \_ m n n \_ m n \_ m

Ans  1. m n n m

2. n m m n

3. n n m m

4. m n m n

Question ID : 7368158175

Status : Answered

Chosen Option : 2

Q.7 In a certain code TOUR is coded as 1234, CLEAR as 56784 and SPARE as 90847. What is the fifth digit for SCULPTURE?

Ans  1. 4

2. 6

3. 0

4. 1

Question ID : 7368158177

Status : Answered

Chosen Option : 3

Q.8 If P's mother is Q's daughter, L is the maternal aunt of P, and M is the sister of Q, then how is M related to L?

Ans  1. mother-in-law

2. aunt

3. sister

4. daughter

Question ID : 7368158171

Status : Answered

Chosen Option : 2

Q.9 In a certain code FIRE is coded as DGPC. What is the last letter of the coded word for SHOT?

Ans  1. R

2. S

3. P

4. Q

Question ID : 7368158178

Status : Answered

Chosen Option : 1

Q.10

Question ID : 7368158174

Status : Answered

Chosen Option : 1

Four engineers, designated as CE, SE, EE and AE, read a certain number of newspapers early in the morning. One of them reads four newspapers, another reads three newspapers, the third reads two newspapers while the fourth one reads one newspaper. Below are some additional facts regarding the names of these officers.

- a) N is not the EE
- b) H is the AE
- c) N is not the CE and he reads more number of newspapers than L
- d) The one who is the CE reads more number of newspapers than L
- e) The person who is the SE reads the maximum number of newspapers
- f) B does not read two newspapers

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Which of the following statements is necessarily true?

Ans

- 1. L is the EE and reads one newspaper
- 2. B is the CE and reads three newspapers
- 3. N is the EE and reads four newspapers
- 4. H is the AE and reads two newspapers

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