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Participant ID	
Participant Name	
Test Center Name	
Test Date	01/04/2023
Test Time	12:30 PM - 2:30 PM
Subject	Junior Engineer (Civil)

Section : Domain Questions

Q.1 Consider the following statements.

Puzzolana used as an admixture in concrete has the following advantages.

1. It improves workability with lesser amount of water.
2. It increases heat of hydration and so sets the concrete quickly.
3. It increases resistance to attack by salts and sulphates.
4. It leaches calcium hydroxide.

Select the correct answer from the given options.

- Ans
- 1. 1, 2, 3 and 4
 - 2. 1, 2 and 4
 - 3. 1 and 3
 - 4. 2, 3 and 4

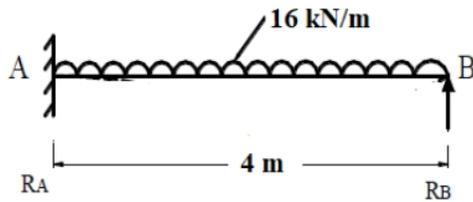
Question ID : 630680197576
Status : Answered
Chosen Option : 1

Q.2 High powder content is a characteristic of which type of concrete?

- Ans
- 1. Ready mixed concrete
 - 2. Self-compacting concrete
 - 3. Light weight concrete
 - 4. Vacuum concrete

Question ID : 630680197604
Status : Answered
Chosen Option : 2

Q.3 What are prop reactions at A and B for a propped cantilever beam shown in the figure?



- Ans
- 1. $R_A = 30 \text{ kN}$ and $R_B = 20 \text{ kN}$
 - 2. $R_A = 35 \text{ kN}$ and $R_B = 25 \text{ kN}$
 - 3. $R_A = 20 \text{ kN}$ and $R_B = 28 \text{ kN}$
 - 4. $R_A = 40 \text{ kN}$ and $R_B = 24 \text{ kN}$

Question ID : 630680197627
Status : Answered
Chosen Option : 4

Q.4 The moment produced at the far end of a beam due to application of a moment at the near end is called:

- Ans
- 1. carryover factor
 - 2. carryover moment
 - 3. distribution factor
 - 4. distribution moment

Question ID : 630680197628
Status : Answered
Chosen Option : 2

Q.5 A cantilever beam of span l carries a uniformly distributed load w /unit length over the entire span.

The deflection at the free end of the cantilever is:

Where, EI - is the flexural rigidity.

- Ans
- 1. $\frac{wl^2}{8EI}$
 - 2. $\frac{wl^2}{4EI}$
 - 3. $\frac{wl^4}{8EI}$
 - 4. $\frac{wl^3}{6EI}$

Question ID : 630680197596
Status : Answered
Chosen Option : 3

Q.6 Select the option that is true regarding the following two statements labelled Assertion (A) and Reason (R).

(A): A pump lifts water from a lower level to a higher level.

(R): The mechanical energy in the pump is converted into pressure energy.

Ans 1.

Both A and R are individually true and R is the correct explanation of A

2. A is false but R is true

3. A is true but R is false

4.

Both A and R are individually true but R is not the correct explanation of A

Question ID : 630680197622

Status : Answered

Chosen Option : 1

Q.7 A natural soil sample has specific gravity of 2.5, dry density of 1.5 g/cm^3 and wet density of 1 g/cm^3 . Find the void ratio of soil sample.

Ans 1. 1.67

2. 2.25

3. 0.67

4. 1.98

Question ID : 630680197609

Status : Not Answered

Chosen Option : --

Q.8 The ratio of pressure energy change inside a runner to the total energy inside the runner is called:

Ans 1. degree of reaction of a turbine

2. efficiency of a turbine

3. speed ratio of a turbine

4. flow ratio of a turbine

Question ID : 630680197621

Status : Answered

Chosen Option : 1

Q.9 The most common method used for determining bending moments in slabs spanning in two directions at right angles and carrying concentrated load is:

Ans 1. Coulomb's theory

2. Rankine's theory

3. Euler's theory

4. Wester-guard's theory

Question ID : 630680197634

Status : Answered

Chosen Option : 2

Q.10 Match the following defects in timber with their descriptions.

Defect	Description
1. Checks	A. longitudinal separations in the wood between the annual rings
2. Shakes	B. characterised by swelling caused by the growth of layers of sapwood over wounds after the branch has been cut off in an irregular manner
3. Rindgall	C. sign of decay appearing in the form of yellow or red tinge or discolouration of overmatured trees
4. Foxiness	D. longitudinal crack which is usually normal to the annual rings

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

Question ID : 630680197579
 Status : Answered
 Chosen Option : 2

Q.11 Shrinkage limit of soli is defined as:

- Ans
- ✗ 1. the water content at which the soil changes from liquid state to plastic state
 - ✗ 2. the water content at which the soil changes from plastic state to shrinkage state
 - ✗ 3. the minimum water content below which the soil stops behaving as a plastic material
 - ✓ 4. the maximum water content at which a reduction of water content will not cause a decrease in the volume of soil mass

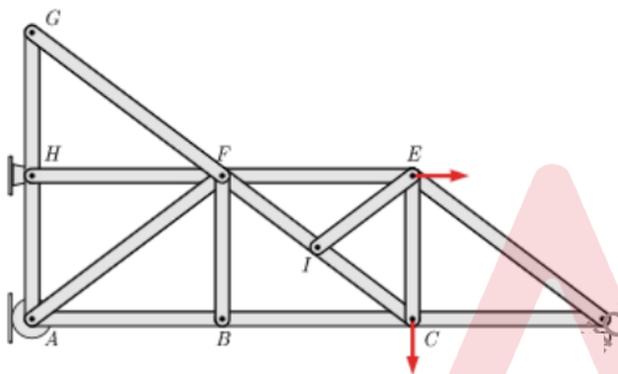
Question ID : 630680197610
 Status : Answered
 Chosen Option : 4

Q.12 The maximum permissible limit of total hardness present in drinking water in the absence of alternate source of water, as per IS 10500-2012 is:

- Ans
- ✓ 1. 600 mg/l
 - ✗ 2. 1000 mg/l
 - ✗ 3. 200 mg/l
 - ✗ 4. 400 mg/l

Question ID : 630680197644
Status : Answered
Chosen Option : 4

Q.13 Identify the zero force members for the truss shown in the figure.



- Ans
- ✗ 1. AH, FC, EI and CE
 - ✓ 2. GH, FG, BF, EI, DE and CD
 - ✗ 3. BC, HF, HG and CD
 - ✗ 4. FE, FD, AF and EI

Question ID : 630680197629
Status : Answered
Chosen Option : 2

Q.14 In plate girders, diagonal buckling of web occurs when:

- Ans
- ✗ 1.
the ratio of thickness of flange to clear depth (t_f/d) exceeds 65
 - ✗ 2.
the ratio of clear depth to thickness of flange (d/t_f) exceeds 65
 - ✗ 3.
the ratio of thickness of web to clear depth (t_w/d) exceeds 85
 - ✓ 4.
the ratio of clear depth to thickness of web (d/t_w) exceeds 85

Question ID : 630680197641
Status : Answered
Chosen Option : 4

Q.15 A simply supported reinforced concrete beam of size 300×500 mm effective is reinforced with 4 bars of 16 mm diameter HYSD steel of grade Fe415. Determine the development length of the bars. Take design anchorage bond stress for M20 concrete and Fe415 steel is 2 MPa.

- Ans**
- 1. 656.5 mm
 - 2. 945.5 mm
 - 3. 722.1 mm
 - 4. 1444.2 mm

Question ID : 630680197639
Status : Answered
Chosen Option : 3

Q.16 'Autoclave' method of testing ordinary Portland cement is to determine:

- Ans**
- 1. fineness of cement
 - 2. compressive strength of cement
 - 3. soundness of cement
 - 4. setting time of cement

Question ID : 630680197574
Status : Answered
Chosen Option : 3

Q.17 Match the admixtures with chemicals used in concrete.

Admixture	Chemical
A. Water reducing admixture	1. Sulphonated melamine
B. Air entraining agent	2. Calcium chloride
C. Super plasticiser	3. Lignosulphonate
D. Accelerator	4. Neutralised vinsol resin

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

Question ID : 630680197605
Status : Answered
Chosen Option : 3

Q.18 Which of the following processes of water treatment is adopted to remove objectionable tastes, odour, and dissolved gases?

- Ans
- 1. Screening
 - 2. Aeration
 - 3. Sedimentation
 - 4. Disinfection

Question ID : 630680197645
Status : Answered
Chosen Option : 2

Q.19 The design for the limit state of collapse in flexure shall NOT be based on which of the following assumptions?

- Ans
- 1. Plane sections normal to the axis remain plane after bending.
 - 2. The maximum compressive strain in concrete in axial compression is taken as 0.002.
 - 3. The tensile strength of the concrete is ignored.
 - 4. The maximum strain in concrete at the outermost compression fibre is taken as 0.0035 in bending.

Question ID : 630680197643
Status : Not Answered
Chosen Option : --

Q.20 In the sedimentation processes of a water treatment unit, zone settling refers to:

- Ans
- 1. sedimentation of discrete particles in a suspension of low solids concentration
 - 2. flocculent suspension of high concentration
 - 3. flocculent suspension of intermediate concentration
 - 4. dilute suspension of particles that coalesce or flocculate during the sedimentation process

Question ID : 630680197650
Status : Not Answered
Chosen Option : --

Q.21 _____ test is conducted for checking the adjustment of a level.

- Ans
- 1. One peg
 - 2. Four peg
 - 3. Three peg
 - 4. Two peg

Question ID : 630680197582
Status : Answered
Chosen Option : 4

Q.22 Which of the following sewer appurtenances is used to collect the debris, sand, grit, etc., flowing with stormwater?

- Ans 1. Catch basins
 2. Cleanouts
 3. Inlets
 4. Manholes

Question ID : 630680197646
Status : Answered
Chosen Option : 4

Q.23 Reciprocal levelling is employed to determine the accurate difference in the level of two points which:

- Ans 1.
have very large difference in level and two instrument settings are required to determine the difference in level
 2. are at almost the same elevation
 3.
are quite apart and where it is not possible to set up the instrument midway between the points
 4.
are quite close and where it is not possible to set up the instrument midway between the points

Question ID : 630680197588
Status : Not Answered
Chosen Option : --

Q.24 The torque transmitted by a solid shaft of diameter 100 mm, when subjected to a shear stress of 16 N/mm^2 is:

- Ans 1. $500\pi \text{ kN-mm}$
 2. $700\pi \text{ kN-mm}$
 3. $1000\pi \text{ kN-mm}$
 4. $850\pi \text{ kN-mm}$

Question ID : 630680197597
Status : Answered
Chosen Option : 3

Q.25 For a transition curve, the shift S of a circular curve is given by:

Where, R is the radius of circular curve and L is the length of transition curve.

Ans

1. $\frac{L}{24R^2}$

2. $\frac{L^2}{24R}$

3. $\frac{L^3}{24R^2}$

4. $\frac{L^2}{24R^2}$

Question ID : 630680197586

Status : Answered

Chosen Option : 2

Q.26 The difference of pressure between any two points in a pipeline or container is measured using:

Ans

1. U-tube manometers

2. differential manometers

3. simple manometers

4. piezometers

Question ID : 630680197616

Status : Answered

Chosen Option : 2

Q.27 In which type of soil classification is the percentage of organics matter and particles of decomposed vegetation categorised into peat?

Ans

1. Unified soil classification system

2. Indian standard classification system

3. AASHTO classification

4. MIT soil classification

Question ID : 630680197607

Status : Not Answered

Chosen Option : --

Q.28 According to IS 456-2000, organic matter present in water for making concrete should NOT be more than:

- Ans
- 1. 100 mg/l
 - 2. 2000 mg/l
 - 3. 200 mg/l
 - 4. 1000 mg/l

Question ID : 630680197598
Status : Answered
Chosen Option : 3

Q.29 Consider the following statements and select the correct option.

The effect of sea water on hardened concrete is to:

- 1. increase its strength
- 2. reduce its strength
- 3. retard setting
- 4. decrease its durability

- Ans
- 1. 2 and 4 are correct
 - 2. 2 and 3 are correct
 - 3. 1 and 4 are correct
 - 4. 1 and 3 are correct

Question ID : 630680197580
Status : Answered
Chosen Option : 1

Q.30 A single riveted lap joint is made in 10 mm thick plates with 20 mm diameter rivets. Determine the bearing strength of the rivet if stresses in bearing is 150 MPa.

- Ans
- 1. 50 kN
 - 2. 20 kN
 - 3. 30 kN
 - 4. 40 kN

Question ID : 630680197635
Status : Not Answered
Chosen Option : --

Q.31 The specific gravity of one litre of liquid weighing 9.81 N is:

- Ans
- 1. 2
 - 2. 4
 - 3. 1
 - 4. 3

Question ID : 630680197617
Status : Answered
Chosen Option : 3

Q.32 What is the range of slump values used as a measure for medium degree of workability of fresh concrete?

- Ans
- 1. 25 – 50 mm
 - 2. 50 – 75 mm
 - 3. 0 – 25 mm
 - 4. 75 – 150 mm

Question ID : 630680197599
Status : Answered
Chosen Option : 2

Q.33 The horizontal distance between two consecutive contour lines is called:

- Ans
- 1. contour gradient
 - 2. horizontal interval
 - 3. horizontal equivalent
 - 4. vertical equivalent

Question ID : 630680197589
Status : Answered
Chosen Option : 3

Q.34 The water pressure of 2 kg/cm^2 is maintained in water supply distribution mains for _____.

- Ans
- 1. residential districts up to 10 storeys
 - 2. residential districts up to 5 storeys
 - 3. residential districts up to 3 storeys
 - 4. residential districts up to 7 storeys

Question ID : 630680197647
Status : Not Answered
Chosen Option : --

Q.35 A faster method to achieve concrete strength is through adaptation of:

- Ans
- 1. membrane curing
 - 2. steam curing
 - 3. chemical curing
 - 4. water curing

Question ID : 630680197603
Status : Answered
Chosen Option : 2

Q.36 The purpose of providing frog in clay bricks is to:

- Ans
- 1. form a reinforced cement column
 - 2. form a key for holding the mortar
 - 3. circulate air in the brick wall
 - 4. drain out the moisture or water

Question ID : 630680197572
Status : Answered
Chosen Option : 2

Q.37 Which of the following is NOT a limitation of plate load test?

- Ans
- 1.
It is not truly applicable for clayey soils as it does not give ultimate settlement.
 - 2.
It is not practicable to provide a reaction of more than 250 kN.
 - 3.
The test can be performed for any level of water table below the footing.
 - 4.
The plate load test does not truly represent the actual conditions if the soil is not homogenous and isotropic to a large depth.

Question ID : 630680197615
Status : Answered
Chosen Option : 3

Q.38 The water pressure per metre length for a water depth of 10 m on a vertical wall is:

Take specific weight of water = 10 kN/m^3 .

- Ans
- 1. 200 kN/m^2
 - 2. 500 kN/m^2
 - 3. 250 kN/m^2
 - 4. 10 kN/m^2

Question ID : 630680197595
Status : Answered
Chosen Option : 4

Q.39 Azimuth is the angle between:

- Ans
- 1. grid meridian and a line
 - 2. true meridian and a line
 - 3. arbitrary meridian and a line
 - 4. magnetic meridian and a line

Question ID : 630680197584
Status : Answered
Chosen Option : 2

Q.40 According IS 456-2000, in T-beams and L-beams, transverse reinforcement or shear and torsion shall pass around longitudinal bars located close to:

- Ans
- 1. the outer face of the flange
 - 2. the middle of the web
 - 3. the centroid of the T or L beam
 - 4. the inner face of the flange

Question ID : 630680197642
Status : Answered
Chosen Option : 4

Q.41 The alidades in plane table survey are used to determine _____.

- Ans
- 1. height of the object
 - 2. directions of objects
 - 3. angle of the object
 - 4. distance of the object

Question ID : 630680197587
Status : Answered
Chosen Option : 1

Q.42 The fine-grained soils in the Indian standard classification system are subdivided into:

- Ans
- 1. medium and high compressibility of soils
 - 2. low and high compressibility of soils
 - 3. low, medium, and high compressibility of soils
 - 4. low and medium compressibility of soils

Question ID : 630680197608
Status : Answered
Chosen Option : 3

Q.43 What is the threshold temperature for hot weather concreting?

- Ans
- 1. Greater than 30°C
 - 2. Greater than 60°C
 - 3. Greater than 50°C
 - 4. Greater than 40°C

Question ID : 630680197601
Status : Not Answered
Chosen Option : --

Q.44 What is the name of the thinner used in plastic paint?

- Ans
- 1. Spirit
 - 2. Naphtha
 - 3. Oil
 - 4. Water

Question ID : 630680197577
Status : Answered
Chosen Option : 2

Q.45 Clapeyron's theorem is used solve:

- Ans
- 1. simply supported beam
 - 2. fixed beam
 - 3. cantilever beam
 - 4. continuous beam

Question ID : 630680197624
Status : Answered
Chosen Option : 4

Q.46 The length, breadth, and height of a rectangular tank full of water up to its brim is in the ratio of 2 : 1 : 2. The ratio of hydrostatic forces at the bottom of that at any larger vertical surface is:

- Ans
- 1. 1
 - 2. 2
 - 3. 4
 - 4. 3

Question ID : 630680197618
Status : Answered
Chosen Option : 1

Q.47 If N is the number of sides of traverse survey, the checks on closure of error based on included angles is:

- Ans
- 1. the sum of measured exterior angles should be equal to $(4N - 2)$ right angles
 - 2. the sum of measured interior angles should be equal to $(2N + 4)$ right angles
 - 3. the sum of measured interior angles should be equal to $(2N - 4)$ right angles
 - 4. the sum of measured exterior angles should be equal to $(2N - 4)$ right angles

Question ID : 630680197585
Status : Answered
Chosen Option : 3

Q.48 'Rhyolite' rocks are a type of:

- Ans
- 1. argillaceous rocks
 - 2. sedimentary rocks
 - 3. metamorphic rocks
 - 4. igneous rocks

Question ID : 630680197573
Status : Not Answered
Chosen Option : --

Q.49 The Indian Standard Method of concrete mix design uses the value of _____ based on the degree of quality control.

- Ans
- 1. mode
 - 2. standard deviation
 - 3. variance
 - 4. mean

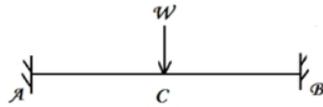
Question ID : 630680197600
Status : Answered
Chosen Option : 2

Q.50 Which of the following components of theodolite is/are used to centre the instrument exactly over the station mark?

- Ans
- 1. Screws
 - 2. Lower plate
 - 3. Plumb bod
 - 4. Levelling head

Question ID : 630680197583
Status : Answered
Chosen Option : 3

Q.51 The degree of static indeterminacy of a fixed beam subjected to point load at the centre, as shown in the figure is:



- Ans
- 1. 4
 - 2. 1
 - 3. 2
 - 4. 3

Question ID : 630680197625
Status : Answered
Chosen Option : 4

Q.52 The following are the necessary conditions that are satisfied by most economical channels.

1. Hydraulic mean depth is half of the depth of flow.
2. The base width of the channel is twice the depth of flow.
3. Half of the top width is equal to one of the sloping sides.
4. A semicircle drawn from midpoint of top width radius, equal to depth of flow will touch three sides of the channel.

Select the conditions for trapezoidal channel.

- Ans
- 1. Conditions 1 and 3
 - 2. Conditions 1, 3, 4
 - 3. Conditions 1 and 2
 - 4. Conditions 1, 2, 3

Question ID : 630680197620
Status : Answered
Chosen Option : 2

Q.53 The measurement of distance by measuring the horizontal angle subtended by the subtense bar targets is called:

- Ans
- 1. theodolite survey
 - 2. subtense tacheometry survey
 - 3. remote sensing survey
 - 4. digital levelling survey

Question ID : 630680197581
Status : Answered
Chosen Option : 2

Q.54 The failure of a riveted joint due to tearing of the plate between the rivet hole and the edge is avoided, if the distance between the centre of rivet and the nearest edge of the plate is equal to:

- Ans
- 1. 1.1 times the diameter of the rivet
 - 2. 1.8 times the diameter of the rivet
 - 3. 1.5 times the diameter of the rivet
 - 4. 1.3 times the diameter of the rivet

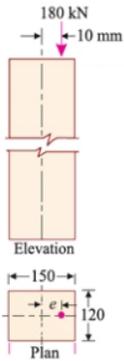
Question ID : 630680197632
Status : Answered
Chosen Option : 3

Q.55 Water flowing in a water supply pipeline has a velocity of 9.81 m/s. What is the head loss at the entrance of the pipe?

- Ans
- 1. 4.4 m
 - 2. 3.5 m
 - 3. 4.91 m
 - 4. 2.5 m

Question ID : 630680197619
Status : Answered
Chosen Option : 3

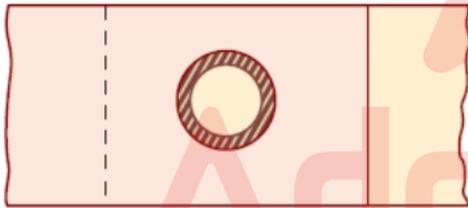
Q.56 A rectangular strut is 150 mm and 120 mm thick shown in figure. It carries a load of 180 kN at an eccentricity of 10 mm in a plane bisecting the thickness. The maximum intensity of stress in the section is:



- Ans
- ✓ 1. 14 MPa
 - ✗ 2. 18 MPa
 - ✗ 3. 16 MPa
 - ✗ 4. 12 MPa

Question ID : 630680197631
 Status : Not Answered
 Chosen Option : --

Q.57 Identify the type of weld shown in the figure.



- Ans
- ✗ 1. Slot weld
 - ✓ 2. Fillet weld
 - ✗ 3. Plug weld
 - ✗ 4. Butt weld

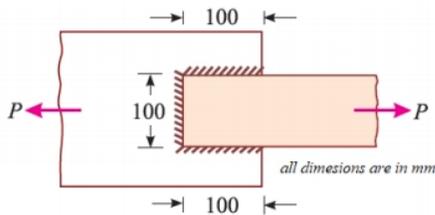
Question ID : 630680197637
 Status : Answered
 Chosen Option : 1

Q.58 Determine the limiting moment of resistance of the singly reinforced beam section of size 100×200 mm effective to carry a factored moment of 200 kNm . The concrete mix and steel used is M20 and Fe415, respectively.

- Ans
- 1. 22.21 kNm
 - 2. 26.50 kNm
 - 3. 18.25 kNm
 - 4. 11.10 kNm

Question ID : 630680197638
Status : Not Answered
Chosen Option : --

Q.59 A tie bar is welded to a plate as shown in the figure. Find the strength of the weld if the size of fillet is 6 mm and working stress of fillet weld is 100 MPa .



- Ans
- 1. 116 kN
 - 2. 106 kN
 - 3. 136 kN
 - 4. 126 kN

Question ID : 630680197636
Status : Not Answered
Chosen Option : --

Q.60 Flocculation of particles in clayey soils is a result of which type of stabilisation?

- Ans
- 1. Cement stabilisation
 - 2. Lime stabilisation
 - 3. Bituminous stabilisation
 - 4. Polymer stabilisation

Question ID : 630680197613
Status : Answered
Chosen Option : 4

Q.61 Match the workability tests with their measurements for fresh concrete.

Workability test	Measurement
A. Slump test	1. 300 mm to 500 mm
B. Compacting factor	2. 75 mm to 125 mm
C. Vee Bee test	3. 0.80 to 0.98
D. Flow test	4. Zero to 10 s

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

Question ID : 630680197606
Status : Answered
Chosen Option : 4

Q.62 A spillway having its downstream end in the form of a reverse curve which turns the flow into the apron of a stilling basin or into the spillway discharge channel is called:

- Ans
- 1. siphon spillway
 - 2. cascade spillway
 - 3. ogee spillway
 - 4. chute spillway

Question ID : 630680197623
Status : Answered
Chosen Option : 3

Q.63 The ratio of Young's modulus of steel to Young's modulus of concrete is called:

- Ans
- 1. stiffness ratio
 - 2. creep ratio
 - 3. modular ratio
 - 4. Poisson ratio

Question ID : 630680197590
Status : Answered
Chosen Option : 3

Q.64 Air-entrained concrete is most suitable in:

- Ans
- 1. underwater condition
 - 2. extreme hot climate
 - 3. submariner condition
 - 4. extreme cold climate

Question ID : 630680197578
Status : Answered
Chosen Option : 2

Q.65 Coulomb's equation for shear strength is given by:

Where, c -unit cohesion

s -shear strength

σ -total stress

ϕ -angle of shearing resistance

- Ans
- 1. $c = s + \sigma \tan \phi$
 - 2. $s = \sigma + c \tan \phi$
 - 3. $s = \sigma - c \tan \phi$
 - 4. $c = s - \sigma \tan \phi$

Question ID : 630680197611
Status : Answered
Chosen Option : 2

Q.66 What is the seepage velocity of water in a soil if its discharge velocity is 4×10^{-5} m/s and void ratio is 0.50?

- Ans
- 1. 20×10^{-7} m/s
 - 2. 18×10^{-7} m/s
 - 3. 12×10^{-5} m/s
 - 4. 22×10^{-7} m/s

Question ID : 630680197614
Status : Not Answered
Chosen Option : --

Q.67 The second area of moment (I) for a circular section of radius R about an axis passing through its centre is:

Ans

✓ 1. $\frac{\pi R^4}{4}$

✗ 2. $\frac{\pi R^2}{4}$

✗ 3. $\frac{\pi R^4}{64}$

✗ 4. $\frac{\pi R^4}{16}$

Question ID : 630680197591

Status : Answered

Chosen Option : 1

Q.68 Read the given statements related to air voids present in concrete and select the correct option.

1. Entrained air is intentionally incorporated, minute spherical bubbles of size ranging from 5 microns to 80 microns distributed evenly in the entire mass of concrete.
2. The entrapped air is the voids present in the concrete due to insufficient compaction.

Ans

✗ 1. Statement 1 is true but statement 2 is false

✗ 2. Statement 1 is false but statement 2 is true

✗ 3. Both the statements are false

✓ 4. Both the statements are true

Question ID : 630680197602

Status : Not Answered

Chosen Option : --

Q.69 Rubbish in solid waste consists of:

Ans

✗ 1. all non-combustible wastes

✗ 2. all biodegradable wastes

✓ 3. all non-putrescible wastes

✗ 4. all putrescible wastes

Question ID : 630680197648

Status : Answered

Chosen Option : 4

Q.70 What is the mass and free drop, respectively, of rammer in the standard proctor test, as per IS 2720-Part 7-1980?

- Ans
- 1. 4.2 kg and 410 mm
 - 2. 2.6 kg and 310 mm
 - 3. 4.9 kg and 450 mm
 - 4. 3.6 kg and 350 mm

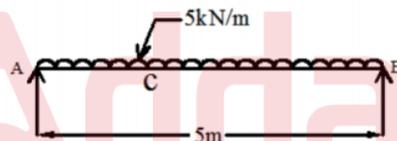
Question ID : 630680197612
Status : Answered
Chosen Option : 2

Q.71 According to IS 456-2000, the minimum striking period for removal of formwork for props to slabs spanning up to 4.5 m is:

- Ans
- 1. 14 days
 - 2. 3 days
 - 3. 7 days
 - 4. 21 days

Question ID : 630680197633
Status : Answered
Chosen Option : 1

Q.72 A simply supported beam 5 m span of cross-sectional area of 40 mm^2 with second area of moment is equal to $400 \times 10^6 \text{ mm}^4$ and Young's modulus of elasticity is equal to $1.2 \times 10^6 \text{ N/mm}^2$. The centroid of bending moment lies at 2 m. It carries an UDL of 5 kN/ m over the entire span as shown in the figure. Calculate the maximum deflection by area moment method.



- Ans
- 1. 0.26 mm
 - 2. 0.55 mm
 - 3. 0.17 mm
 - 4. 0.75 mm

Question ID : 630680197626
Status : Not Answered
Chosen Option : --

Q.73 When steel beams are bent about yy-axis, the maximum permissible bending stress in compression or tension should NOT exceed _____.

- Ans**
- 1. 0.35 times the characteristic strength
 - 2. 1.2 times the characteristic strength
 - 3. 0.85 times the characteristic strength
 - 4. 0.66 times the characteristic strength

Question ID : 630680197640
Status : Answered
Chosen Option : 4

Q.74 Which of the following pairs with regards to coarse aggregate greater than 10 mm is NOT correctly matched?

- (A) Crushing resistance → 10 per cent fine
- (B) Toughness → Impact test
- (C) Hardness → Abrasion set
- (D) Specific gravity → Pycnometer

- Ans**
- 1. D
 - 2. C
 - 3. B
 - 4. A

Question ID : 630680197575
Status : Answered
Chosen Option : 4

Q.75 The maximum shear stress occurs at mid of the height of a:

- Ans**
- 1. square section
 - 2. rectangular section
 - 3. triangular section
 - 4. circular section

Question ID : 630680197594
Status : Answered
Chosen Option : 3

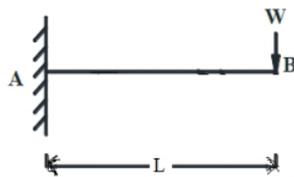
Q.76 The maximum daily consumption of water is equal to:

- Ans
- 1. 140% of the annual average daily consumption
 - 2. 180% of the annual average daily consumption
 - 3. 150% of the average for the day
 - 4. 13% of the annual average daily rate of demand

Question ID : 630680197649
Status : Answered
Chosen Option : 2

Q.77 The maximum slope and deflection for a cantilever beam of length 'L' subjected to point load 'W' at free end shown in the figure are:

Where, EI is the flexural rigidity.



- Ans
- 1. deflection = $\frac{WL^4}{8EI}$ and slope = $\frac{WL^3}{6EI}$
 - 2. deflection = $\frac{WL^3}{3EI}$ and slope = $\frac{WL^2}{2EI}$
 - 3. deflection = $\frac{WL^2}{3EI}$ and slope = $\frac{WL^3}{2EI}$
 - 4. deflection = $\frac{WL^3}{12EI}$ and slope = $\frac{WL^2}{4EI}$

Question ID : 630680197630
Status : Answered
Chosen Option : 2

Q.78 A composite section contains four different materials. The stresses in all the different materials will be:

- Ans
- 1. in the ratio of their areas
 - 2. equal
 - 3. zero
 - 4. different

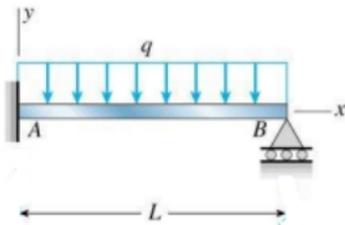
Question ID : 630680197593
Status : Answered
Chosen Option : 3

Q.79 The processes of sludge treatment which improves the drainability of digested sludge is:

- Ans
- ✓ 1. conditioning
 - ✗ 2. dewatering
 - ✗ 3. thickening
 - ✗ 4. digestion

Question ID : 630680197651
Status : Answered
Chosen Option : 3

Q.80 Study the propped cantilever beam in the given figure.



What is the maximum shear force at the fixed end?

- Ans
- ✗ 1. $\frac{9qL^2}{128}$
 - ✗ 2. $\frac{5qL}{4}$
 - ✓ 3. $\frac{5qL}{8}$
 - ✗ 4. $\frac{9qL^2}{28}$

Question ID : 630680197592
Status : Answered
Chosen Option : 3

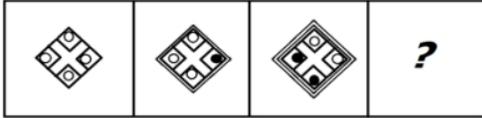
Section : Reasoning

Q.1 Eight teachers, P, X, Q, Z, R, B, C and S, are sitting around a square table, facing the centre of the table. Four of them are sitting at the corners, while four are sitting at the exact centre of the sides. Q is sitting exactly between R and S. C and S are diagonally opposite to each other. X is sitting exactly between B and S. C is sitting exactly between P and Z. R is sitting at the immediate right of Z. Who is sitting at the immediate right of C?

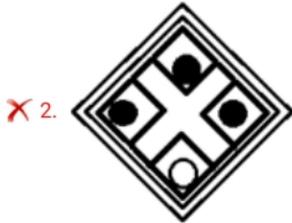
- Ans
- ✗ 1. P
 - ✗ 2. X
 - ✓ 3. Z
 - ✗ 4. S

Question ID : 630680197652
Status : Answered
Chosen Option : 1

Q.2 Select the figure from among the given options that can replace the question mark (?) in the following series.



Ans



Question ID : 630680197657
Status : Answered
Chosen Option : 1

Q.3 In a certain code language, 'BEN' is coded as '42' and 'CAN' is coded as '36'. How will 'LIE' be coded in that language?

- Ans
- ✗ 1. 54
 - ✗ 2. 50
 - ✓ 3. 52
 - ✗ 4. 48

Question ID : 630680197654
Status : Not Answered
Chosen Option : --

Q.4 Select correct combination of mathematical signs that can sequentially replace the 'A' and balance the given equation.

12 A 4 A 12 A 6 A 4 A 2 A 2

- Ans
- 1. +, -, +, ×, =, +
 - 2. -, +, +, ×, =, +
 - 3. -, +, +, =, ×, +
 - 4. -, +, ×, =, +, +

Question ID : 630680197660
Status : Answered
Chosen Option : 3

Q.5 Select the option that is related to the fifth term in the same way as the second term is related to the first term and the fourth term is related to the third term.

RUN 36 : TXS 216 :: SRK 16 : UUP 64 :: HUT 9 : ?

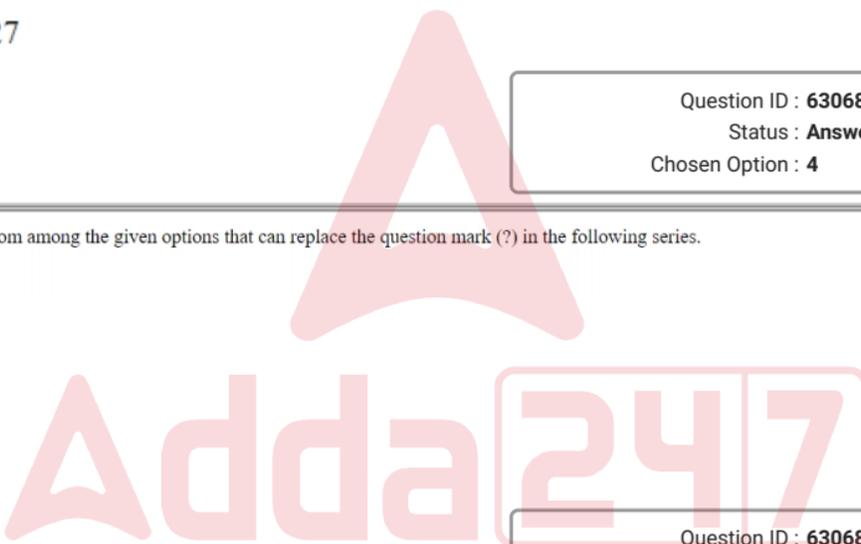
- Ans
- 1. JXX 27
 - 2. JXZ 27
 - 3. JXY 81
 - 4. JXY 27

Question ID : 630680197656
Status : Answered
Chosen Option : 4

Q.6 Select the number from among the given options that can replace the question mark (?) in the following series.

26, 31, 29, 34, 32, ?

- Ans
- 1. 39
 - 2. 37
 - 3. 34
 - 4. 30



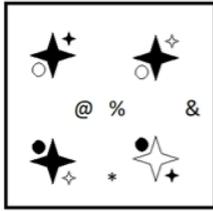
Question ID : 630680197659
Status : Answered
Chosen Option : 2

Q.7 M is the father of O. P is the sister of O. Q is the sister of M. N is the son of O. R is the wife of O. How is P related to R?

- Ans
- 1. Husband's mother
 - 2. Mother's sister
 - 3. Sister
 - 4. Husband's sister

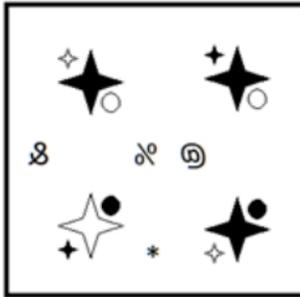
Question ID : 630680197655
Status : Answered
Chosen Option : 4

Q.8 Select the correct mirror image of the given figure when the mirror is placed at the right side.



Ans

✓ 1.



✗ 2.



✗ 3.



✗ 4.



Question ID : 630680197658
Status : Answered
Chosen Option : 1

Q.9 If '+' means 'division', '-' means 'addition', '×' means 'subtraction' and '÷' means 'multiplication', what will be the value of the following expression?

$$[(14 \times 6) - (2 \div 4)] + (6 - 2) \div 5$$

- Ans**
- 1. 10
 - 2. 1
 - 3. 5
 - 4. 20

Question ID : 630680197661
Status : Answered
Chosen Option : 1

Q.10 Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

- I. Some registers are markers.
- II. No grill is a marker.

Conclusions:

- I. All registers are grills.
- II. No marker is a grill.

- Ans**
- 1. Both conclusions I and II follow.
 - 2. Only conclusion II follows.
 - 3. Neither conclusion I nor II follows.
 - 4. Only conclusion I follows.

Question ID : 630680197653
Status : Answered
Chosen Option : 3

Section : Quantitative Aptitude

Q.1 If the sides of a triangle are 12 cm, 15 cm and 17 cm, then the area (in cm^2) of the triangle formed by joining the mid-points of the sides of this triangle is (take $\sqrt{77} = 8.775$):

- Ans**
- 1. 21.9375
 - 2. 22.2275
 - 3. 23.1275
 - 4. 24.0625

Question ID : 630680197670
Status : Not Answered
Chosen Option : --

Q.2 The average marks in mathematics of two sections A and B of class X in the annual examination is 76. The average marks of section A is 80 and that of section B is 70. If the number of students of section A is 30 more than that of section B, then the number of students in section A is:

- Ans**
- ✓ 1. 90
 - ✗ 2. 87
 - ✗ 3. 96
 - ✗ 4. 84

Question ID : 630680197665
Status : Not Answered
Chosen Option : --

Q.3 A and B working separately can complete a piece of work 60 days and 70 days, respectively. If they work for a day alternately, B beginning, in how many days will the work be completed?

- Ans**
- ✓ 1. $64\frac{2}{3}$ days
 - ✗ 2. $63\frac{2}{3}$ days
 - ✗ 3. $66\frac{2}{3}$ days
 - ✗ 4. $65\frac{2}{3}$ days

Question ID : 630680197669
Status : Not Answered
Chosen Option : --

Q.4 A trader sells an article at a profit of 15%. Had he bought it at 10% more and sold it for ₹34 more, he would have earned a profit of 20%. The cost price of the article (in ₹) is:

- Ans**
- ✗ 1. 250
 - ✓ 2. 200
 - ✗ 3. 350
 - ✗ 4. 300

Question ID : 630680197667
Status : Not Answered
Chosen Option : --

Q.5 Two trains start at same time from the stations A and B, respectively, and travel towards each other at speeds of 50 km/h and 60 km/h, respectively. At the time they meet, the faster train has travelled 45 km more than the slower train. What is the distance (in km) between the two stations?

- Ans**
- ✓ 1. 495
 - ✗ 2. 385
 - ✗ 3. 445
 - ✗ 4. 545

Question ID : 630680197668
Status : Not Answered
Chosen Option : --

Q.6 $\frac{4^k \times 20^{m-1} \times 12^{m-k} \times 15^{k+m}}{16^m \times 9^{m-1} \times 5^{k+2m}}$ is equal to:

- Ans
- 1. $\frac{9}{80}$
 - 2. $\frac{9}{20}$
 - 3. $\frac{9}{50}$
 - 4. $\frac{9}{40}$

Question ID : 630680197662
Status : Not Answered
Chosen Option : --

Q.7 The number of bricks each measuring 18 cm × 15 cm × 12 cm required to build a wall measuring 12 m × 0.45 m × 1.89 m if $\frac{3}{14}$ of its volume is taken by mortar is:

- Ans
- 1. 2565
 - 2. 2295
 - 3. 2475
 - 4. 2385

Question ID : 630680197671
Status : Not Answered
Chosen Option : --

Q.8 If 35% of a number is 15 less than 60% of that number, then the number is:

- Ans
- 1. 80
 - 2. 60
 - 3. 50
 - 4. 70

Question ID : 630680197666
Status : Not Answered
Chosen Option : --

Q.9 Simplify the given expression.

$$1 + \frac{2}{1 + \frac{2}{3} \div \frac{4}{1 - \frac{2}{3}}}$$

Ans

- 1. $1\frac{4}{17}$
- 2. $1\frac{5}{13}$
- 3. $1\frac{7}{19}$
- 4. $1\frac{11}{15}$

Question ID : 630680197663
Status : Not Answered
Chosen Option : --

Q.10 The average of 13 results is 60. If the average of the first seven results is 56 and that of the last seven is 65, then the seventh result is:

Ans

- 1. 65
- 2. 64
- 3. 67
- 4. 66

Question ID : 630680197664
Status : Answered
Chosen Option : 3

Section : General Awareness

Q.1 Aman Sehrawat is related to which of the following sports?

Ans

- 1. Boxing
- 2. Hockey
- 3. Javelin
- 4. Wrestling

Question ID : 630680197681
Status : Not Answered
Chosen Option : --

Q.2 Which of the following Acts enacted by the British Parliament is considered to be a landmark in the development of legal institutions in India?

- Ans
- 1. Regulating Act of 1927
 - 2. Regulating Act of 1773
 - 3. Regulating Act of 1889
 - 4. Regulating Act of 1836

Question ID : 630680197680
Status : Not Answered
Chosen Option : --

Q.3 Which of the following ministries has the highest allocations of expenditure according to Union Budget 2023-24?

- Ans
- 1. Agriculture and Farmers' Welfare
 - 2. Defence
 - 3. Food and Public Distribution
 - 4. Road Transport and Highways

Question ID : 630680197675
Status : Not Answered
Chosen Option : --

Q.4 Who among the following founded the Mohammadan Anglo-Oriental College (M.A.O.) at Aligarh in 1875, which later developed into the Aligarh Muslim University?

- Ans
- 1. Osman Ali Khan
 - 2. Syed Ahmed Khan
 - 3. Muhammad Akhtar Raza Khan
 - 4. Tajush Shari'ah Mufti

Question ID : 630680197673
Status : Not Answered
Chosen Option : --

Q.5 One of the Sultans who ruled during 1320 to 1325, also known as Ghazi Malik constructed the city known as _____.

- Ans
- 1. Dinpanah
 - 2. Firozabad
 - 3. Siri
 - 4. Tughlaqabad

Question ID : 630680197674
Status : Not Answered
Chosen Option : --

Q.6 Article 18 of the Indian Constitution is related to:

- Ans
- 1. equality of opportunity in terms of public employment
 - 2. freedom to manage religious affairs
 - 3. protection of life and personal liberty
 - 4. abolition of titles except military and academic

Question ID : 630680197679
Status : Answered
Chosen Option : 4

Q.7 Which of the following statements is/are INCORRECT about pteridophyte plants?

- a. They contain vascular tissue.
- b. They do not contain vascular tissue.
- c. Mosses are an example of pteridophytes.

- Ans
- 1. b and c
 - 2. Only b
 - 3. a and c
 - 4. Only a

Question ID : 630680197678
Status : Not Answered
Chosen Option : --

Q.8 Which of the following schemes was launched in the year 2020 to bring about 'Blue Revolution' through sustainable and responsible development in India?

- Ans
- 1. Pradhan Mantri Save Marine Life Yojana
 - 2. Pradhan Mantri Shram Yogi Maan-Dhan
 - 3. Pradhan Mantri Jal Shakti Yojana
 - 4. Pradhan Mantri Matsya Sampada Yojana

Question ID : 630680197677
Status : Answered
Chosen Option : 3

Q.9 According to Union Budget 2023-24 presented by Finance Minister of India on 1 February 2023, the nominal GDP is estimated to grow at a rate of _____ in 2023-24.

- Ans
- 1. 5.4%
 - 2. 8.7%
 - 3. 10.5%
 - 4. 12.2%

Question ID : 630680197676
Status : Not Answered
Chosen Option : --

Q.10 'PM-PRANAM Scheme' announced during Union Budget 2023-24 on 1 February 2023, is related to:

- Ans
- 1. conserve wetlands by promoting their optimal use
 - 2. integrated property validation solution for rural India
 - 3. old age protection and social security of unorganised workers
 - 4. promote alternatives to fertilisers

Question ID : 630680197672
Status : Answered
Chosen Option : 1

Section : English Language

Q.1 Select the most appropriate option to fill in the blank.

Some miners _____ at a coal mine were injured yesterday afternoon.

- Ans
- 1. worked
 - 2. working
 - 3. work
 - 4. were working

Question ID : 630680197683
Status : Answered
Chosen Option : 4

Q.2 The following sentence has been divided into parts. One of them may contain a spelling error. Select the part that contains the error from the given options. If you don't find any error, mark 'No error' as your answer.

He wanted to provide an alternative / for pet owners who were unable / to handle large veterinary bills.

- Ans
- 1. to handle large veterinary bills
 - 2. He wanted to provide an alternative
 - 3. for pet owners who were unable
 - 4. No error

Question ID : 630680197685
Status : Answered
Chosen Option : 1

Q.3 Select the most appropriate meaning of the given idiom.

Keep one's chin up

- Ans
- 1. Abandon a difficult situation
 - 2. Remain cheerful in difficulties
 - 3. Do everything to achieve something
 - 4. Be proud of yourself

Question ID : 630680197687
Status : Answered
Chosen Option : 2

Q.4 Select the most appropriate synonym of the word given in brackets to fill in the blank.

In the dense fog, even the nearby objects were quite _____ (indistinct).

- Ans
- 1. evident
 - 2. blurred
 - 3. definite
 - 4. obvious

Question ID : 630680197684
Status : Answered
Chosen Option : 2

Q.5 Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the correct order to form a meaningful and coherent paragraph.

- A. He chopped down a tree and chopped off the branches, one by one.
- B. It was hard work, and he grew tired.
- C. A woodcutter was hard at work beside a river.
- D. He stacked the small branches in one pile and the large branches in another pile.

- Ans
- 1. CBAD
 - 2. CADB
 - 3. ACDB
 - 4. BDCA

Question ID : 630680197688
Status : Answered
Chosen Option : 2

Q.6 Select the most appropriate option to fill in the blank.

People may be going to the moon for a visit a decade _____ now.

- Ans
- 1. to
 - 2. before
 - 3. for
 - 4. from

Question ID : 630680197682
Status : Answered
Chosen Option : 4

Q.7 Select the most appropriate meaning of the given idiom.

Hold your horses

- Ans
- 1. Wait a moment
 - 2. Keep silence
 - 3. Stay away
 - 4. Don't be angry

Question ID : 630680197686
Status : Answered
Chosen Option : 1

Comprehension:

Read the given passage and answer the questions that follow.

Over 78.9% of 4.1 crore students in higher education are enrolled at the undergraduate level, and of the total enrolled students over one crore are pursuing BA. Another 17 lakh (4.2%) students are doing BA (Hons) from various higher education institutions. This was revealed in the All India Survey on Higher Education (AISHE) 2020-21 released on Sunday by the ministry of education. State-wise data shows Karnataka, Telangana, Kerala and Himachal Pradesh having the highest number of colleges per lakh eligible population. Though the overall enrolment is on a record high, there has been a dip for Muslims and other minorities in higher education, which otherwise has been an upward trend for the past five years.

The government data showed that BA courses had the highest enrolment in the country at over 1 crore students, followed by Bachelor of Science (BSc) courses at 49.12 lakh students, according to the government's AISHE 2020-21. In BA, 52.7% are females and 47.3% are males. The latest survey also showed that at undergraduate level in arts and science there are more females. Even at postgraduate level in streams like science, commerce and education, females outnumber males by a big margin.

As per the report, BSc "has 49.12 lakh students enrolled (of them 52.2% are females). There are 43.22 lakh students enrolled in BCom (of them 48.5% are girls). BTech has 23.20 lakh enrolled students, of which 28.7% are females. Bachelor of Engineering (BE) has 13.42 lakh students enrolled, out of which 28.5% are females."

SubQuestion No : 8

Q.8 The passage is mainly talking about:

- Ans**
- 1. the status of female students in higher education
 - 2. the All-India Survey on colleges for undergraduates
 - 3. the student population at undergraduate level
 - 4. the status of higher education in India

Question ID : 630680197690

Status : Answered

Chosen Option : 2

Comprehension:

Read the given passage and answer the questions that follow.

Over 78.9% of 4.1 crore students in higher education are enrolled at the undergraduate level, and of the total enrolled students over one crore are pursuing BA.

Another 17 lakh (4.2%) students are doing BA (Hons) from various higher education institutions. This was revealed in the All India Survey on Higher Education (AISHE) 2020-21 released on Sunday by the ministry of education. State-wise data shows Karnataka, Telangana, Kerala and Himachal Pradesh having the highest number of colleges per lakh eligible population. Though the overall enrolment is on a record high, there has been a dip for Muslims and other minorities in higher education, which otherwise has been an upward trend for the past five years.

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SubQuestion No : 9

Q.9 Match the different courses with their enrolment.

Courses	Enrolment
a. B.Sc.	1. 43.22 lakh students
b. B.A.	2. 49.12 lakh students
c. B. Com	3. Over 1 crore students

- Ans
- 1. a-1, b-3, c-2
 - 2. a-3, b-1, c-2
 - 3. a-2, b-3, c-1
 - 4. a-2, b-1, c-3

Question ID : 630680197691
Status : Answered
Chosen Option : 3

Comprehension:

Read the given passage and answer the questions that follow.

Over 78.9% of 4.1 crore students in higher education are enrolled at the undergraduate level, and of the total enrolled students over one crore are pursuing BA.

Another 17 lakh (4.2%) students are doing BA (Hons) from various higher education institutions. This was revealed in the All India Survey on Higher Education (AISHE) 2020-21 released on Sunday by the ministry of education. State-wise data shows Karnataka, Telangana, Kerala and Himachal Pradesh having the highest number of colleges per lakh eligible population. Though the overall enrolment is on a record high, there has been a dip for Muslims and other minorities in higher education, which otherwise has been an upward trend for the past five years.

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As per the report, BSc "has 49.12 lakh students enrolled (of them 52.2% are females). There are 43.22 lakh students enrolled in BCom (of them 48.5% are girls). BTech has 23.20 lakh enrolled students, of which 28.7% are females. Bachelor of Engineering (BE) has 13.42 lakh students enrolled, out of which 28.5% are females."

SubQuestion No : 10

Q.10 Which statement is NOT true according to the passage?

- Ans** ✓ 1. There are more male students enrolled in B.A. courses than the female students.
- ✗ 2. The total population of students in higher education in India is 4.1 crore.
- ✗ 3. The highest enrolment has been recorded in B.A. courses in the country.
- ✗ 4. The number of female students is more than the male students in B.Sc. courses.

Question ID : 630680197692

Status : Answered

Chosen Option : 1