Section : **Domain Questions**

Q.1 Which of the following method uses $Ca(OH)_2$ (slaked lime) for water softening?

Ans
✘ 1. Versenate method

✘ 2. Hehner's method

✘ 3. Colorimetric method

✔ 4. Clark's method

Question ID : **630680197766**
Status : **Answered**
Chosen Option : **2**

Q.2 Which of the following statements is/are correct/incorrect for the honeycomb soil structure?

Statement A: It is found in soils having sizes of 0.02 mm to 0.002 mm.

Statement B: These soils enclosed a small volume of voids.

Ans
✘ 1. Both Statements A and B are incorrect

✔ 2. Only Statement A is correct

✘ 3. Only Statement B is correct

✘ 4. Both Statements A and B are correct

Question ID : **630680197729**
Status : **Answered**
Chosen Option : **4**

Q.3 Consider the given statements with respect to artificial construction materials used in construction and identify the correct answer.

Statement A: Transparent glass can be made opaque by grinding the surface of glass using emery.

Statement B: Bulletproof glass is produced by placing vinyl plastic and glass in several alternate layers and pressing them with outer layers of glass.

Ans ✗ 1. Both statements A and B are incorrect.

✗ 2. Statement A is correct but statement B is incorrect.

✔ 3. Both statements A and B are correct.

✗ 4. Statement B is correct but statement A is incorrect.

Question ID : **630680197697**
Status : **Answered**
Chosen Option : **3**

Q.4 Consider the given statements with respect to buckling of columns and identify the correct answer.

Statement A: Local buckling in steel columns can be prevented by providing suitable width-to-thickness ratios to the compression elements.

Statement B: Flexural torsional buckling failure in steel columns can occur in those sections with one axis of symmetry and also in sections with no axis of symmetry.

Ans ✗ 1. Statement A is correct but statement B is incorrect.

✗ 2. Both statements A and B are incorrect.

✔ 3. Both statements A and B are correct.

✗ 4. Statement B is correct but statement A is incorrect.

Question ID : **630680197757**
Status : **Answered**
Chosen Option : **3**

Q.5 In the analysis of structures, Euler's formula holds good for_____.

Ans ✗ 1. principal rafters in trusses

✗ 2. squat columns

✗ 3. trusses with long span

✔ 4. long columns

Question ID : **630680197754**
Status : **Answered**
Chosen Option : **4**

Q.6 Calculate Reynold's number, if the kinematic viscosity of water is 0.01×10^{-4} m^2/sec, flowing through a pipe of diameter 200 mm with a velocity of 5 m/s.

Ans ✗ 1. 2.0×10^6

✓ 2. 1×10^6

✗ 3. 0.4×10^6

✗ 4. 3.5×10^6

Q.7 According to IS 12269: 2013, which of the following is NOT a performance improver in cement?

Ans ✗ 1. Metakaolin

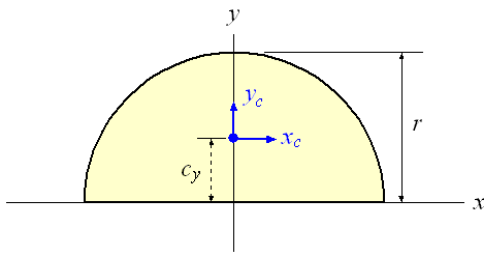✗ 2. Limestone

✓ 3. Stone dust

✗ 4. Fly ash

Q.8 As per IS 456: 2000, the nominal cover thickness specified to meet 1.5 hours of fire resistance in case of simply supported beams is _____.

Ans ✗ 1. 60 mm

✗ 2. 40 mm

✓ 3. 20 mm

✗ 4. 15 mm

Q.9 A semi-circular lamina of radius r = 60 mm is shown in the figure. Calculate the location of centroid (C_y) measured from diametric x axis.

Ans

✗ 1. $\dfrac{45}{\pi}$

✗ 2. $\dfrac{80}{3\pi}$

✗ 3. $\dfrac{60}{3\pi}$

✔ 4. $\dfrac{80}{\pi}$

Question ID : **630680197747**
Status : **Answered**
Chosen Option : **4**

Q.10 Calculate the mean hydraulic radius of an open channel whose cross-sectional area is 30 m² and wetted perimeter is 80 m.

Ans ✗ 1. 0.925 m

✔ 2. 0.375 m

✗ 3. 1.265 m

✗ 4. 2.667 m

Question ID : **630680197743**
Status : **Answered**
Chosen Option : **2**

Q.11 If an aggregate fraction passing through IS sieve size 50 mm and retained on 40 mm is said to be flaky, the least dimension of tested sample of aggregate shall be less than _____.

Ans ✗ 1. 39 mm

✗ 2. 45 mm

✔ 3. 27 mm

✗ 4. 35 mm

Question ID : **630680197722**
Status : **Answered**
Chosen Option : **3**

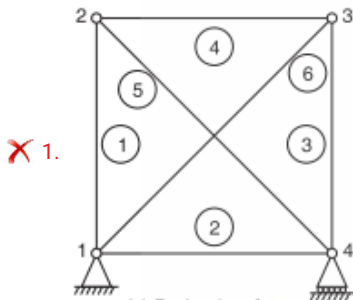**Q.12** Identify the type of truss shown in the figure.

Ans
- ✔ 1. Fan truss
- ✘ 2. Pratt truss
- ✘ 3. Howe truss
- ✘ 4. Queen post truss

Question ID : **630680197756**
Status : **Answered**
Chosen Option : **3**

Q.13 Which of the following beams/trusses is classified as statically determinate structure?

Ans

✘ 1.

✘ 2.

✘ 3.

✔ 4.

Question ID : **630680197746**
Status : **Answered**
Chosen Option : **4**

Q.14 Which of the following types of surveying is NOT a classified type of surveying based upon the instruments or methods employed?

Ans

✓ 1. Geological survey

✗ 2. Chain survey

✗ 3. Plane table survey

✗ 4. Theodolite survey

Question ID : **630680197702**
Status : **Answered**
Chosen Option : **1**

Q.15 Study the given table and answer the question that follows.

The table shows staff readings observed in a reciprocal levelling conducted between two stations X and Y.

Instrument at	Staff Readings	
	X	Y
X	2.230 m	3.550 m
Y	0.910 m	2.240 m

Calculate the true difference in elevation between two points X and Y.

Ans

✗ 1. 1.725 m

✓ 2. 1.325 m

✗ 3. 2.015 m

✗ 4. 0.965 m

Question ID : **630680197705**
Status : **Answered**
Chosen Option : **2**

Q.16 According to IS: 6403-1981, in the computation of ultimate net bearing capacity for strip footings, what is the value of shape factor (S_c) to be used for square shape of base?

Ans

✗ 1. 0.5

✗ 2. 0.9

✓ 3. 1.3

✗ 4. 1.7

Question ID : **630680197734**
Status : **Answered**
Chosen Option : **3**

Q.17 What is the name of the instrument shown in the given figure?
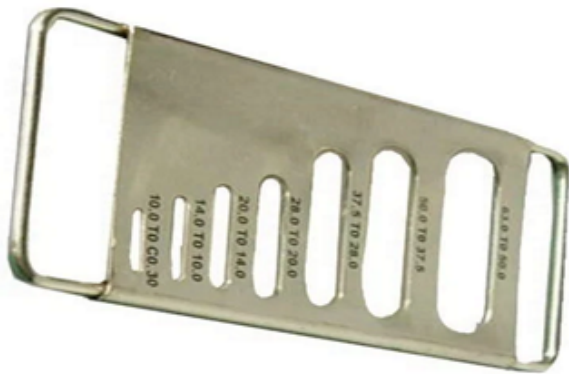
Ans

✗ 1. Sieves Gauge

✓ 2. Flakiness Index Gauge

✗ 3. Specific gravity apparatus

✗ 4. Elongation Index Gauge

Question ID : **630680197726**
Status : **Answered**
Chosen Option : **4**

Q.18 As per IS 10500: 2012, 'drinking water specifications', the acceptable limit for colour in the water is _____.

Ans

✗ 1. 15 Hazen units

✗ 2. 20 Hazen units

✓ 3. 5 Hazen units

✗ 4. 10 Hazen units

Question ID : **630680197765**
Status : **Answered**
Chosen Option : **3**

Q.19 A cantilever beam AB of length 'L' is subjected to a point load of magnitude 'W' kN at its free end B. Calculate the deflection at B. Take EI as constant throughout its length.

Ans

✗ 1. $-\dfrac{WL^3}{48EI}$

✗ 2. $-\dfrac{WL^3}{8EI}$

✓ 3. $-\dfrac{WL^3}{3EI}$

✗ 4. $-\dfrac{WL^3}{54EI}$

Question ID : **630680197748**
Status : **Answered**
Chosen Option : **3**

Q.20 Which of the following is an example of Newtonian fluids?

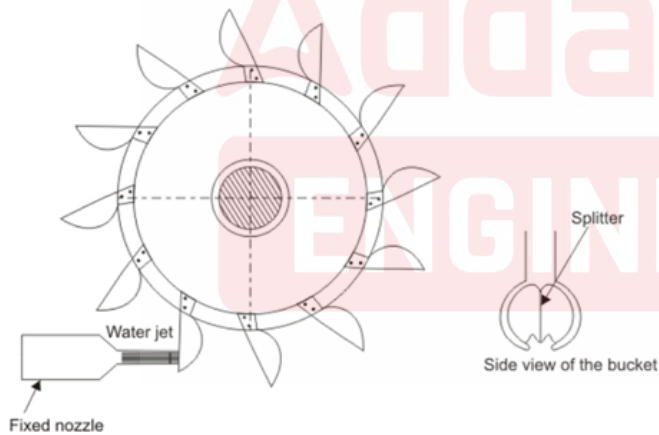Ans ✗ 1. Cheese

✗ 2. Toothpaste

✔ 3. Alcohol

✗ 4. Quicksand

Q.21 If the Moment 'M' is carried by flanges only, then the economical depth 'd' of girder is given by _____. Where, 'f_y' is yield strength of steel and 'A_f' is the net area of tension flange.

Ans ✗ 1. $d = 2f_y/(M\,A_f)$

✔ 2. $d = M/(f_y\,A_f)$

✗ 3. $d = f_y/(M\,A_f)$

✗ 4. $d = (M\,A_f)/\,f_y$

Q.22 Which of the following types of turbine uses the rotor system shown in the figure?

Ans ✗ 1. Reaction turbine

✗ 2. Kaplan Turbine

✗ 3. Francis turbine

✔ 4. Pelton turbine

Q.23 Select the option which is the odd one with respect to type of impurities present in water.

Ans ✗ 1. Selenium

✗ 2. Sodium

✓ 3. Silts

✗ 4. Calcium

Question ID : 630680197770
Status : **Answered**
Chosen Option : **1**

Q.24 As per IS456: 2000, the permissible limit for chlorides present in water shall NOT be greater than _____ for making plain cement concrete.

Ans ✗ 1. 1,000 mg/l

✗ 2. 1,500 mg/l

✓ 3. 2,000 mg/l

✗ 4. 500 mg/l

Question ID : 630680197721
Status : **Answered**
Chosen Option : **3**

Q.25 Which of the following is NOT a desirable property of concrete, that is expected to provide good compressive strength?

Ans ✗ 1. Greater compacted density

✓ 2. Greater permeability

✗ 3. Reduced segregation and bleeding

✗ 4. Reduced porosity

Question ID : 630680197725
Status : **Answered**
Chosen Option : **2**

Q.26 Consider the given statements with respect to purpose of settling in the treatment of municipal and industrial wastewater and identify the correct answer.

Statement A: To remove coagulated and flocculated impurities.

Statement B: To settle the sludge (biomass) after activated sludge process / tricking filters.

Ans ✗ 1. Statement B is correct but statement A is incorrect.

✗ 2. Statement A is correct but statement B is incorrect.

✓ 3. Both statements A and B are correct.

✗ 4. Both statements A and B are incorrect.

Question ID : 630680197769
Status : **Answered**
Chosen Option : **3**

Q.27 Which of the following is NOT a product of hydration of cement?

Ans ✗ 1. Calcium silicate hydrate

✗ 2. Calcium aluminate hydrate

✗ 3. Calcium hydroxide

✓ 4. Di calcium silicate

Question ID : **630680197720**
Status : **Answered**
Chosen Option : **3**

Q.28 Which of the following building materials has comparatively lower specific gravity?

Ans ✗ 1. Glass

✓ 2. Water

✗ 3. Cement

✗ 4. Soil

Question ID : **630680197700**
Status : **Answered**
Chosen Option : **2**

Q.29 Calculate Young's Modulus of Elasticity of a material, whose bulk modulus is 50 GPa, modulus of rigidity is 30 GPa and Poisson's ratio is 0.25.

Ans ✗ 1. 60 GPa

✓ 2. 75 GPa

✗ 3. 90 GPa

✗ 4. 110 GPa

Question ID : **630680197713**
Status : **Answered**
Chosen Option : **2**

Q.30 A prismatic bar with cross-section 30 mm × 30 mm and length 1 m is subjected to an axial tensile force of magnitude 90 kN, within the elastic limit of material. Calculate Young's Modulus of Elasticity if it experiences a strain of 0.0005.

Ans ✓ 1. $200 \times 10^3 \text{ N/mm}^2$

✗ 2. $167 \times 10^3 \text{ N/mm}^2$

✗ 3. $225 \times 10^3 \text{ N/mm}^2$

✗ 4. $125 \times 10^3 \text{ N/mm}^2$

Question ID : **630680197712**
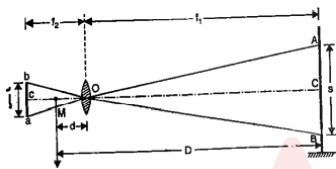Status : **Answered**
Chosen Option : **1**

Q.31 A cantilever beam is subjected to 2-point loads as shown in the figure. Calculate slope at free end (C). Take EI as constant throughout its length.
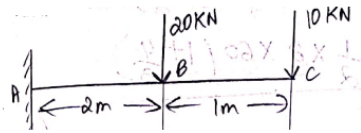
Ans

✗ 1. $-\dfrac{48}{EI}$

✔ 2. $-\dfrac{85}{EI}$

✗ 3. $-\dfrac{124}{EI}$

✗ 4. $-\dfrac{183.33}{EI}$

Q.32 The principle of stadia method used in tacheometric surveying is shown in the figure; the distance 'ab', i.e. 'i', refers to _____.

Ans

✗ 1. distance of the vertical axis of the instrument from 'O'

✗ 2. staff intercept

✔ 3. interval between the stadia hairs

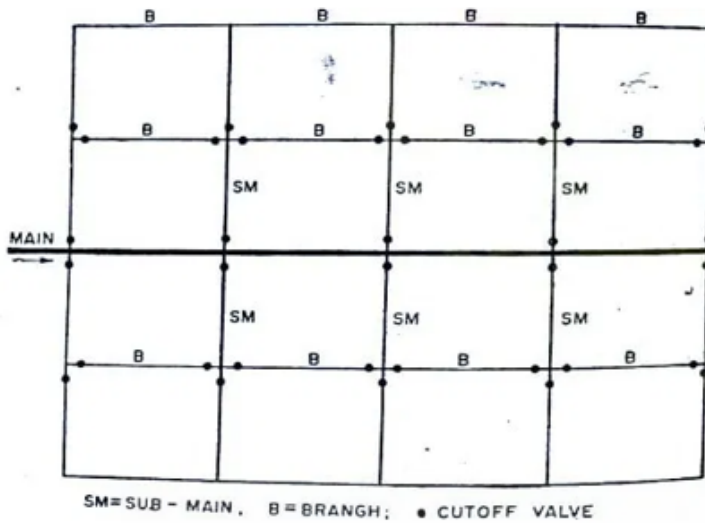✗ 4. focal length of the objective

Q.33 As per IS 10262: 2019, what is the assumed value of standard deviation (S) for M55 grade of concrete?

Ans

✗ 1. 4 N/mm^2

✗ 2. 2 N/mm^2

✔ 3. 5 N/mm^2

✗ 4. 3 N/mm^2

Q.34 Identify the type of water distribution system shown in the figure.

SM = SUB - MAIN , B = BRANGH; • CUTOFF VALVE

Ans   ✗ 1. Radial system

    ✓ 2. Grid iron system

    ✗ 3. Dead end system

    ✗ 4. Ring system

Q.35 A beam with a triangular cross-section is subjected to a shear force of 20 kN. Calculate the value of average shear stress if base width of the section is 200 mm and height is 100 mm.

Ans   ✗ 1. 1.55 N/mm^2

    ✗ 2. 2.45 N/mm^2

    ✗ 3. 1.20 N/mm^2

    ✓ 4. 2.00 N/mm^2

Q.36 The specific gravity of structural granite when tested according to IS 1121 (part I): 1974, shall NOT be less than _____.

Ans   ✗ 1. 2.8

    ✓ 2. 2.6

    ✗ 3. 3.0

    ✗ 4. 3.2

Q.37 Which of the following is an INCORRECT bending equation based on the theory of pure bending? Where, M = Bending moment, I = Moment of inertia exerted on the bending axis, σ = Stress of the fibre at a distance 'y' from neutral/centroidal axis, E = Young's Modulus of beam material, R = Curvature radius of this bent beam and Z = Section modulus of the section.

Ans

✔ 1. $\sigma = \dfrac{EI}{MR}$

✘ 2. $M = \sigma\, Z$

✘ 3. $\dfrac{M}{I} = \dfrac{E}{R}$

✘ 4. $\dfrac{\sigma}{y} = \dfrac{E}{R}$

Q.38 Identify the given test apparatus that is used to determine the shear strength of soil.
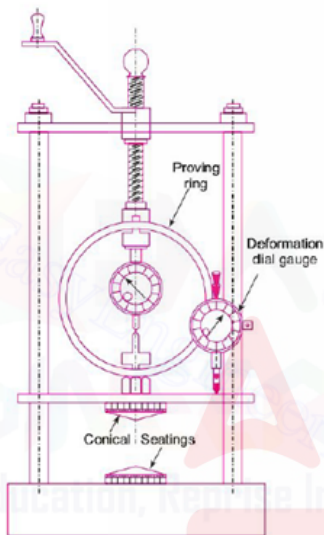
Ans

✔ 1. Unconfined compression test apparatus

✘ 2. Triaxial compression test apparatus

✘ 3. Vane shear test apparatus

✘ 4. Direct shear test apparatus

Q.39 Consider the given statements with respect to standards set for lap length and development length in RCC structures as per IS 456: 2000 specifications and identify the correct answer.

Statement A: Lap splices shall not be used for bars with diameter greater than 36 mm.

Statement B: Lap length in compression shall be always greater than development length in compression.

Ans ✗ 1. Statement A is correct but statement B is incorrect.

   ✗ 2. Statement B is correct but statement A is incorrect.

   ✗ 3. Both statements A and B are correct.

   ✔ 4. Both statements A and B are incorrect.

Q.40 As per IS 456: 2000, minimum shear reinforcement in the form of stirrups in beams shall NOT be less than_____, where, b = breadth of beam, s_v = stirrups spacing along the length of member, and f_y = characteristic strength of the stirrup reinforcement in N/mm^2.

Ans ✗ 1. $\dfrac{0.5bf_y}{0.9s_v}$

   ✗ 2. $\dfrac{0.5bf_y}{s_v}$

   ✔ 3. $\dfrac{0.4bs_v}{0.87f_y}$

   ✗ 4. $\dfrac{0.5s_v}{0.85bf_y}$

Q.41 Consider the given statements with respect to strength of compacted soil and identify the correct answer.

Statement A: Shear strength of compacted clay does not depend on method of compaction.

Statement B: Strength of cohesive soils compacted dry of optimum is lower than those compacted wet of optimum.

Ans ✗ 1. Statement A is correct but statement B is incorrect.

   ✔ 2. Both statements A and B are incorrect.

   ✗ 3. Statement B is correct but statement A is incorrect.

   ✗ 4. Both statements A and B are correct.

Q.42 Consider the given statements with respect to centre of pressure for fluids at rest and identify the correct answer.

Statement A: The centre of pressure is calculated by using Varignon's theorem of moments.

Statement B: The distance of centre of pressure from free surface of liquid depends in density of liquid.

Ans
✗ 1. Both statements A and B are correct.

✔ 2. Statement A is correct but statement B is incorrect.

✗ 3. Statement B is correct but statement A is incorrect.

✗ 4. Both statements A and B are incorrect.

Question ID : **630680197741**
Status : **Answered**
Chosen Option : **2**

Q.43 What is the correct unit of 'maturity of concrete'?

Ans
✗ 1. degree Fahrenheit minutes

✗ 2. degree centigrade minutes

✗ 3. degree centigrade second

✔ 4. degree centigrade hours

Question ID : **630680197723**
Status : **Answered**
Chosen Option : **4**

Q.44 Consider the given statements with respect to surface tension and capillarity in liquids and identify the INCORRECT statement.

Ans
✗ 1.
Surface tension is due to cohesion between particles at the free surface.

✗ 2. Capillary action is due to both cohesion and adhesion.

✗ 3.
A falling rain drop becomes spherical due to cohesion and surface tension.

✔ 4.
Since soap solution has a negligible value of surface tension, even small pressure of blowing a soap bubble will tend to grow larger in diameter.

Question ID : **630680197737**
Status : **Not Answered**
Chosen Option : **--**

Q.45 According to IS 1077: 1992, for common burnt clay building bricks 'class 25' the water absorption shall NOT be more than _____ per cent by weight.

Ans
✗ 1. 8

✔ 2. 15

✗ 3. 12

✗ 4. 25

Question ID : **630680197694**
Status : **Answered**
Chosen Option : **2**

**Q.46** Consider the given statements with respect to repetition method and identify the correct answer.

Statement A: Errors due to eccentricity of Vernier's are eliminated by taking the mean of both Vernier readings.

Statement B: Errors due to inaccurate graduations cannot be eliminated by repetition method.

Ans ✗ 1. Statement B is correct but statement A is incorrect.

✗ 2. Both statements A and B are correct.

✔ 3. Statement A is correct but statement B is incorrect.

✗ 4. Both statements A and B are incorrect.

Question ID : **630680197708**
Status : **Answered**
Chosen Option : **3**

Q.47 Identify the instrument in the given figure which is used for plane table surveying.
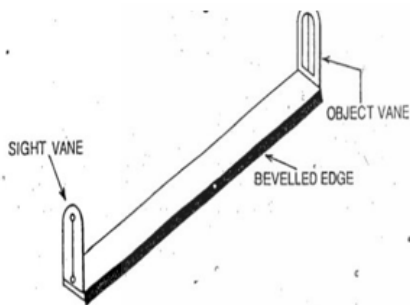
Ans ✗ 1. Trough compass

✔ 2. Alidade

✗ 3. Plumbing fork

✗ 4. Spirit level

Question ID : **630680197709**
Status : **Answered**
Chosen Option : **2**

Q.48 The magnetic bearing of a line XY is **S 25° 30' E**. Calculate its true bearing, if the magnetic declination at that place is **4° 30' E**.

Ans ✗ 1. S 27° 30' E

✗ 2. S 30° 00' E

✗ 3. S 33° 30' E

✔ 4. S 21° 00' E

Question ID : **630680197704**
Status : **Answered**
Chosen Option : **4**

Q.49 Consider the given information related to size (Width × Depth × Height) of RCC columns and identify slender columns.

Column 1: 450 mm × 450 mm × 3800 mm

Column 2: 150 mm × 300 mm × 3650 mm

Column 3: 200 mm × 450 mm × 3650 mm

Column 4: 150 mm × 300 mm × 2500 mm

Column 5: 300 mm × 300 mm × 3200 mm

Ans ✘ 1. Column 2, column 4, column 5

✘ 2. Column 1, column 4, column 5

✔ 3. Column 2, column 3, column 4

✘ 4. Column 2, column 3, column 5

Question ID : **630680197764**
Status : **Answered**
Chosen Option : **3**

Q.50 Approximate specific gravity value of a soil constituent quartz is _____.

Ans ✘ 1. 3.83

✔ 2. 2.65

✘ 3. 5.65

✘ 4. 1.78

Question ID : **630680197728**
Status : **Answered**
Chosen Option : **2**

Q.51 As per IS 456: 2000, nominal cover thickness to meet the durability requirements in moderate exposure conditions shall NOT be less than _____.

Ans ✘ 1. 20 mm

✔ 2. 30 mm

✘ 3. 10 mm

✘ 4. 40 mm

Question ID : **630680197759**
Status : **Answered**
Chosen Option : **2**

Q.52 Consider the given statements with respect to hot and cold weather concreting and identify the correct answer.

Statement A: Hot weather concreting experiences lesser plastic shrinkage when compared to concreting in normal weather condition.

Statement B: The rate of hardening of cement concrete in cold weather is lower than that in hot weather.

Ans
✗ 1. Statement A is correct but statement B is incorrect.

✗ 2. Both statements A and B are correct.

✔ 3. Statement B is correct but statement A is incorrect.

✗ 4. Both statements A and B are incorrect.

Question ID : **630680197727**
Status : **Answered**
Chosen Option : **3**

Q.53 Which of the following minor losses in pipe flow is taken as $0.5\frac{v^2}{2g}$, where V is velocity of liquid in pipe?

Ans
✔ 1.
Loss of head at the entrance of the pipe with sharp cornered entrance.

✗ 2.
Loss of head at the exit of the pipe with sharp cornered exit.

✗ 3. Loss of head due to friction.

✗ 4. Loss of head due to obstruction in the pipe.

Question ID : **630680197740**
Status : **Answered**
Chosen Option : **1**

Q.54 The value of coefficient of the curvature (C_c) for well graded soil lies between _____.

Ans
✗ 1. 5 to 7

✗ 2. 9 to 11

✗ 3. 15 to 17

✔ 4. 1 to 3

Question ID : **630680197730**
Status : **Answered**
Chosen Option : **4**

Q.55 According to IS 800-2007, the maximum value of effective slenderness ratio for members always under tension (other than pre-tensioned members) is _____.

Ans
✗ 1. 250

✗ 2. 500

✔ 3. 400

✗ 4. 350

Question ID : **630680197753**
Status : **Answered**
Chosen Option : **3**

Q.56 The direction of a line PQ is found to be 186°30' in the whole circle bearing system. The direction of the same line in the quadrantal bearing system is _____.

Ans
✔ 1. S 6°30' W

✘ 2. S 83°30' W

✘ 3. N 173°30' W

✘ 4. N 186°30' E

Question ID : **630680197703**
Status : **Answered**
Chosen Option : **1**

Q.57 Which of the following methods is used for the determination of coefficient of consolidation?

Ans
✘ 1. Square root of volume method

✘ 2. Logarithm of density method

✘ 3. Logarithm of volume method

✔ 4. Square root of time method
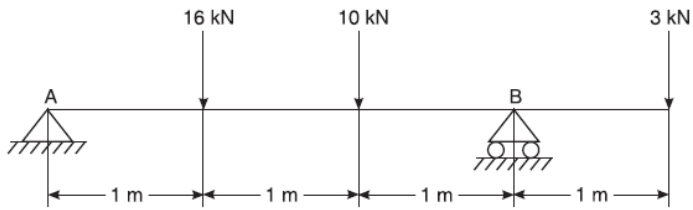
Question ID : **630680197736**
Status : **Answered**
Chosen Option : **4**

Q.58 Which of the following laboratory tests/instruments is NOT used to assess physical properties of cement?

Ans
✔ 1. Viscometer test

✘ 2. Blaine's air permeability test apparatus

✘ 3. Vicat's apparatus

✘ 4. Soundness test

Question ID : **630680197698**
Status : **Answered**
Chosen Option : **3**

Q.59 A beam is subjected to 3-point loads as shown in the figure. Calculate the shear force at point A.

Ans

✔ 1. 13 kN upwards

✘ 2. 16 kN upwards

✘ 3. 19 kN upwards

✘ 4. 11 kN upwards

Question ID : **630680197714**
Status : **Answered**
Chosen Option : **1**

Q.60 Consider the given statements with respect to characteristic features used while plotting a contour plan and identify the correct answer.

Statement A: Contour lines which are equally spaced, indicate uniform slope.

Statement B: Contour lines of different elevations cannot cross each other in case of overhanging cliff.

Ans

✘ 1. Both statements A and B are correct.

✘ 2. Statement B is correct but statement A is incorrect.

✔ 3. Statement A is correct but statement B is incorrect.

✘ 4. Both statements A and B are incorrect.

Question ID : **630680197706**
Status : **Answered**
Chosen Option : **3**

Q.61 The critical section for two-way shear is located at a distance of _____ in case of design of an isolated footing as per limit state method. Consider the effective depth of footing as 500 mm.

Ans

✔ 1. 250 mm from the face of column

✘ 2. 100 mm from the face of column

✘ 3. 300 mm from the face of column

✘ 4. 150 mm from the face of column

Question ID : **630680197758**
Status : **Answered**
Chosen Option : **1**

Q.62 Find the torque which a shaft of 200 mm diameter can safely transmit, if the shear stress is NOT to exceed 50 N/mm^2.

Ans

✗ 1. $35\pi \times 10^6$ N-mm

✔ 2. $25\pi \times 10^6$ N-mm

✗ 3. $12.5\pi \times 10^6$ N-mm

✗ 4. $10\pi \times 10^6$ N-mm

Question ID : **630680197752**
Status : **Answered**
Chosen Option : **2**

Q.63 Consider the given statements with respect to specifications for autoclaved cellular (aerated) concrete blocks as per IS 2185 (part 3): 1984 and identify the correct answer.

Statement A: Autoclaved cellular (aerated) concrete blocks are used for both load bearing and non-load bearing internal walls.

Statement B: The maximum variation in the length of autoclaved cellular (aerated) concrete blocks shall not be more than (+/−) 5 mm.

Ans

✗ 1. Both statements A and B are incorrect.

✗ 2. Statement B is correct and but statement A is incorrect.

✔ 3. Both statements A and B are correct.

✗ 4. Statement A is correct but statement B is incorrect.

Question ID : **630680197701**
Status : **Answered**
Chosen Option : **2**

Q.64 A circular rod with cross-sectional area 314.16 mm^2 and section modulus 785.4 mm^3 carries a pull of magnitude 50 kN along a line which is parallel to the centroidal axis with an eccentricity of 0.5 mm. Calculate the maximum stress caused if the direct stress is found to be 159.15 N/mm^2 and compressive stress due to eccentricity is 31.83 N/mm^2.

Ans

✗ 1. 45.425 N/mm^2

✗ 2. 96.259 N/mm^2

✗ 3. 127.32 N/mm^2

✔ 4. 190.98 N/mm^2

Question ID : **630680197751**
Status : **Not Answered**
Chosen Option : **--**

Q.65 A rectangular section of width (X-X) 200 mm and depth 400 mm (Y-Y) is to be provided as a beam. Calculate its moment of inertia with respect to a horizontal axis (X-X) passing through centroid of the said section.

Ans

✗ 1. $2.058 \times 10^9 \, \text{mm}^4$

✔ 2. $1.067 \times 10^9 \, \text{mm}^4$

✗ 3. $4.266 \times 10^9 \, \text{mm}^4$

✗ 4. $3.023 \times 10^9 \, \text{mm}^4$

Q.66 Which of the following defects in timber due to abnormal growth has longitudinal cracks that are usually normal to the annular rings?

Ans

✔ 1. Checks

✗ 2. Foxiness

✗ 3. Rind galls

✗ 4. End splits

Q.67 The given expression for Euler's crippling load (P) is applicable to which of the following column end conditions? Consider that, L = actual length of column, E = modulus of elasticity of material and I = moment of inertia of column cross-section.

$$P = \frac{EI\pi^2}{4L^2}$$

Ans

✗ 1. Both ends of the column are hinged.

✗ 2. Both ends of the column are fixed.

✔ 3. One end is fixed and the other end is free.

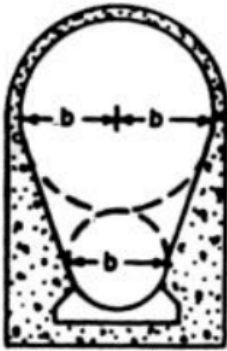✗ 4. One end is fixed and the other end is hinged.

Q.68 Which of the following beam systems has lower number of support reactions?

Ans

✗ 1. Fixed support beam

✔ 2. Simply supported beam

✗ 3. Continuous beam with three spans

✗ 4. Propped cantilever beam

Q.69 Identify the type of sewer categorised on the basis of its shape in the given figure.

Ans

✗ 1. Basket handle shaped sewer

✗ 2. Semi-circular shaped sewer

✓ 3. Standard ovoid/egg shaped sewer

✗ 4. Horseshoe shaped sewer

Question ID : **630680197772**
Status : **Answered**
Chosen Option : **3**

Q.70 Identify the type of retaining wall shown in the figure.
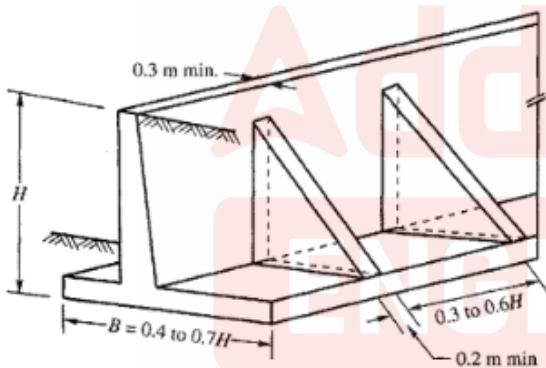
Ans

✗ 1. Cantilever retaining wall

✓ 2. Counterfort retaining wall

✗ 3. Semi-gravity retaining wall

✗ 4. Gravity retaining wall
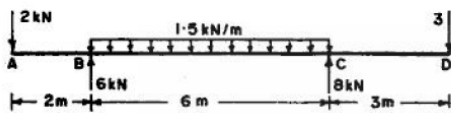
Question ID : **630680197749**
Status : **Answered**
Chosen Option : **2**

Q.71 In a compass surveying work, it is observed that the direction of a line AB is N 65°30'W in quadrantal bearing system. Find out the direction of the same line in the whole circle bearing system.

Ans ✔ 1. 294°30'

✗ 2. 154°30'

✗ 3. 425°30'

✗ 4. 114°30'

Q.72 Identify the INCORRECT statement by referring to the both sides overhanging beam ABCD shown in the figure. Consider that a point load 2 kN is acting at A, 3 kN acting at D and a uniformly distributed load of intensity 1.5 kN/m between BC.

Ans ✗ 1. Shear force at point C is greater than that at point B.

✗ 2. Bending moment at point C is greater than that at point B.

✔ 3. Bending moment at point B is greater than that at point C.

✗ 4. Shear force at point D is lesser than that at point B.

Q.73 Under working stress design method of concrete structures, calculate the modular ratio of M20 grade concrete subjected to compressive stress due to bending, if the permissible compressive stress for M20 grade concrete in bending is 7 N/mm^2.

Ans ✗ 1. 18.57 N/mm^2

✗ 2. 16.72 N/mm^2

✔ 3. 13.33 N/mm^2

✗ 4. 7.56 N/mm^2

Q.74 As per IS 10500-2012, the acceptable limit of calcium content in drinking water is _____ mg/l.

Ans
✗ 1. 150
✔ 2. 75
✗ 3. 90
✗ 4. 30

Q.75 Consider the given information related to size of RCC slabs and identify one-way slabs.

Slab 1: Lx = 5 m, Ly = 7 m

Slab 2: Lx = 3 m, Ly = 7 m

Slab 3: Lx = 3.5 m, Ly = 5 m

Slab 4: Lx = 4 m, Ly = 9.5 m

Slab 5: Lx = 4.5 m, Ly = 9 m

Ans
✗ 1. Slab 1, slab 3, slab 5
✗ 2. Slab 2, slab 4, slab 5
✗ 3. Slab 1, slab 3
✔ 4. Slab 2, slab 4

Q.76 Consider the given statements with respect to sewer appurtenances and identify the correct answer.

Statement A: Clean out is an inclined pipe with its one end to the underground sewer line and the other brought up to ground level for cleaning purpose.

Statement B: The depth of shallow manholes are in the range of 2.5 m to 3.0 m.

Ans
✗ 1. Both statements A and B are incorrect.
✗ 2. Both statements A and B are correct.
✗ 3. Statement B is correct but statement A is incorrect.
✔ 4. Statement A is correct but statement B is incorrect.

Q.77 As per Indian Standard Soil Classification System (ISSCS), if the coefficient of uniformity of a soil sample is greater than 4 and coefficient of curvatures lies between 1 to 3, the soil is classified as _____.

Ans
✔ 1. GW

✘ 2. SP

✘ 3. GC

✘ 4. SC

Question ID : **630680197733**
Status : **Answered**
Chosen Option : **1**

Q.78 Consider the given statements with respect to Darcy's Law on flow of water through soil and identify the correct answer.

Statement A: The average velocity of flow that will occur through the total cross- sectional area of soil under unit hydraulic gradient is termed as coefficient of permeability.

Statement B: When hydraulic gradient is unity, Darcy's coefficient of permeability is equal to velocity of flow.

Ans
✘ 1. Both statements A and B are incorrect.

✔ 2. Both statements A and B are correct.

✘ 3. Statement B is correct and but statement A is incorrect.

✘ 4. Statement A is correct but statement B is incorrect.

Question ID : **630680197731**
Status : **Answered**
Chosen Option : **2**

Q.79 Consider the given statements with respect to fine aggregates (sand) used in construction and identify the correct answer.

Statement A: Zone IV sand is coarse in nature when compared to Zone III sand.

Statement B: Size of fine aggregates fraction ranges from 4.75 mm to 75 micron.

Ans
✘ 1. Both statements A and B are correct.

✘ 2. Both statements A and B are incorrect.

✘ 3. Statement A is correct but statement B is incorrect.

✔ 4. Statement B is correct but statement A is incorrect.

Question ID : **630680197695**
Status : **Answered**
Chosen Option : **4**

Q.80 The left limb of a U-tube manometer containing mercury is connected to a pipe in which a fluid of specific gravity 1 is flowing as shown in the figure. Find the pressure of fluid in the pipe. Take acceleration due to gravity (g) as 9.81 m/sec^2 and density of mercury as 13600 kg/m^3.
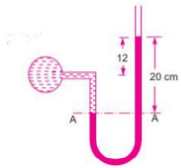
Ans ✗ 1. 17456.7 N/m^2

✗ 2. 12569.5 N/m^2

✔ 3. 25898.4 N/m^2

✗ 4. 35655.3 N/m^2

Question ID : **630680197738**
Status : **Answered**
Chosen Option : **1**

Section : **Reasoning**

Q.1 Study the given diagram carefully and answer the question that follows. The numbers in different sections indicate the numbers of people who work in different institutions.
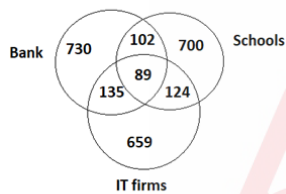
What is the ratio of the number of people work only in schools to those who work only in banks?

Ans ✔ 1. 700 : 730

✗ 2. 824 : 832

✗ 3. 1000 : 832

✗ 4. 926 : 730

Question ID : **630680197774**
Status : **Answered**
Chosen Option : **1**

Q.2 Select the correct combination of mathematical signs that can sequentially replace the * signs and balance the given equation.

20 * 14 * 6 * 3 * 1 * 2 * 2

Ans ✗ 1. $-, +, \div, \times, =, +$

✓ 2. $-, -, \div, =, \times, +$

✗ 3. $-, +, \times, =, \div, +$

✗ 4. $+, -, \div, \times, =, +$

Question ID : **630680197782**
Status : **Answered**
Chosen Option : **2**

Q.3 Eight doulas, P, Q, R, S, E, F, G and H, are sitting around a square table, facing the centre of the table. Four of them are sitting at the corners, while the rest of them are sitting at the exact centre of all the sides. G is at the immediate right of S. S, at a corner, is sitting fourth to the right of E. H is at the immediate left of F and is second to the right of P. R, at a corner, is between G and P. Who is sitting between F and S?

Ans ✗ 1. H

✗ 2. P

✓ 3. Q

✗ 4. R

Question ID : **630680197773**
Status : **Answered**
Chosen Option : **3**

Q.4 In a certain code language, 'ANNUAL' is coded as 'OZFMMZ' and 'BARREL' is coded as 'OVIIZY'. How will 'BOTTLE' be coded in that language?

Ans ✗ 1. VPGGLY

✗ 2. VOGLGY

✓ 3. VOGGLY

✗ 4. VOGGMY

Question ID : **630680197775**
Status : **Not Answered**
Chosen Option : **--**

Q.5 Select the number from among the given options that can replace the question mark (?) in the following series.

6, 8, 16, 18, 36, 38, ?

Ans ✗ 1. 72

✗ 2. 36

✓ 3. 76

✗ 4. 40

Question ID : **630680197780**
Status : **Answered**
Chosen Option : **3**

Q.6 यदि

'A @ B' का अर्थ है कि 'A, B का पति है',

'A / B' का अर्थ है कि 'A, B का भाई है',

'A $ B' का अर्थ है कि 'A, B की पत्नी है',

'A = B' का अर्थ है कि 'A, B का पुत्र है' और

'A * B' का अर्थ है कि 'A, B की मां है',

तो निम्नलिखित व्यंजक में M, Q से किस रूप में संबंधित है?

M @ N * O / P $ Q

Ans
✗ 1. भाई का पुत्र

✗ 2. पुत्री का पति

✓ 3. पत्नी के पिता

✗ 4. पुत्र का पुत्र

Question ID : **630680197776**
Status : **Answered**
Chosen Option : **3**

Q.7 Select the option that is related to the third term in the same way as the second term is related to the first term.

(The words must be considered as meaningful English words and must not be related to each other based on the number of letters/number of consonants/vowels in the word.)

VOLUME : LITRE :: PRESSURE : ?

Ans
✓ 1. PASCAL

✗ 2. WATT

✗ 3. JOULE

✗ 4. NEWTON

Question ID : **630680197777**
Status : **Answered**
Chosen Option : **1**

Q.8 Select the correct mirror image of the given combination when the mirror is placed at 'AB' as shown.

PROBABILITY |

Ans ✗ 1. ꓯꓔIꓶIꓭꓯꓭOЯꟼ

✓ 2. YTIꓶIꓭꓯꓭOЯꟼ

✗ 3. ꟼꓤOꓭꓯꓭIꓶITꓩ

✗ 4. YTIꓶIꓭꓯꓭOЯꟼ

Question ID : **630680197779**
Status : **Answered**
Chosen Option : **2**

Q.9 Which two numbers should be interchanged to make the following equation correct?

$6 \times 5 \div 15 + 16 - 14 = 12$

Ans ✓ 1. 6 and 12

✗ 2. 15 and 16

✗ 3. 12 and 16

✗ 4. 12 and 15

Question ID : **630680197781**
Status : **Answered**
Chosen Option : **1**

Q.10 Select the figure from among the given options that can replace the question mark (?) in the following series.

Ans

✗ 1.

✗ 2.

✗ 3.

✓ 4.

Question ID : **630680197778**
Status : **Answered**
Chosen Option : **4**

Q.1 एक निश्चित समय पर ट्रेन A स्टेशन से एकसमान चाल से निकलती है। 2 घंटे के बाद, ट्रेन B स्टेशन से निकलती है और उसी दिशा में 75 km/h की एकसमान चाल से यात्रा करती है। ट्रेन B, ट्रेन A को 4 घंटे में पार करती है। तो दोनों ट्रेनों की सापेक्ष चाल क्या है?

Ans
✔ 1. 25 km/h

✘ 2. 30 km/h

✘ 3. 20 km/h

✘ 4. 35 km/h

Question ID : **630680197789**
Status : **Answered**
Chosen Option : **1**

Q.2 पांच घंटियाँ एक साथ बजना शुरू करती हैं और वे क्रमशः 5, 10, 15, 18 और 20 सेकंड के अंतराल पर बजती हैं। 90 मिनट में वे कितनी बार एक साथ बजती हैं?

Ans
✘ 1. 32

✘ 2. 36

✘ 3. 35

✔ 4. 30

Question ID : **630680197784**
Status : **Answered**
Chosen Option : **4**

Q.3 If $\sqrt{1 + \frac{x}{169}} = \frac{15}{13}$, then the value of x is:

Ans
✔ 1. 56

✘ 2. 48

✘ 3. 64

✘ 4. 44

Question ID : **630680197783**
Status : **Answered**
Chosen Option : **1**

Q.4 A किसी कार्य को 60 दिन में पूरा कर सकता है। वह उस पर 12 दिन तक कार्य करता है और फिर B शेष कार्य को 24 दिन में अकेले पूरा करता है। A और B एक साथ कार्य करते हुए उसी कार्य को कितने दिनों में पूरा करेंगे?

Ans
✘ 1. 25 दिन

✔ 2. 20 दिन

✘ 3. 30 दिन

✘ 4. 36 दिन

Question ID : **630680197790**
Status : **Answered**
Chosen Option : **3**

Q.5 A book was sold for ₹704 with a profit of 10%. If it were sold for ₹664, then what would have been the percentage of profit or loss?

Ans
✗ 1. 4.25% profit

✓ 2. 3.75% profit

✗ 3. 4.25% loss

✗ 4. 3.75% loss

Question ID : **630680197788**
Status : **Answered**
Chosen Option : **2**

Q.6 A batsman makes a score of 90 runs in the 17th innings and thus increases his average by 3. What is his average after the 17th innings?

Ans
✗ 1. 48

✗ 2. 40

✓ 3. 42

✗ 4. 45

Question ID : **630680197785**
Status : **Answered**
Chosen Option : **3**

Q.7 एक व्यक्ति एक समबाहु त्रिभुज की भुजाओं में क्रमशः 20 km/h, 32 km/h और x km/h की चाल से यात्रा करता है। यदि यात्रा की औसत चाल 24 km/h है, तो x का मान क्या है?

Ans
✗ 1. $20\frac{4}{7}$

✗ 2. $23\frac{5}{7}$

✗ 3. $21\frac{5}{7}$

✓ 4. $22\frac{6}{7}$

Question ID : **630680197786**
Status : **Not Answered**
Chosen Option : **--**

Q.8 Arjun's salary was decreased by 12% and subsequently increased by 15%. How much was the percentage increase or decrease in his salary?

Ans
✗ 1. 1.2% decrease

✗ 2. 1.5% increase

✓ 3. 1.2% increase

✗ 4. 1.5% decrease

Question ID : **630680197787**
Status : **Answered**
Chosen Option : **3**

Q.9 एक आयत की लम्बाई, उसकी चौड़ाई की दोगुनी है। यदि उसकी लंबाई 4 cm घटा दी जाती है और चौड़ाई 4 cm बढ़ा दी जाती है, तो उस आयत का क्षेत्रफल 52 cm^2 बढ़ जाता है। उस आयत की लंबाई (cm में) क्या है?

Ans
- ✔ 1. 34
- ✗ 2. 38
- ✗ 3. 32
- ✗ 4. 36

Question ID : **630680197791**
Status : **Answered**
Chosen Option : **1**

Q.10 How many spherical lead shots each of radius 2.1 cm can be obtained from a solid rectangular lead piece with dimensions 84 cm, 77 cm and 63 cm.

Ans
- ✔ 1. 10,500
- ✗ 2. 10,700
- ✗ 3. 10,600
- ✗ 4. 10,800

Question ID : **630680197792**
Status : **Answered**
Chosen Option : **1**

Section : **General Awareness**

Q.1 केंद्रीय बजट 2023-24 के अनुसार निम्नलिखित में से किस मंत्रालय ने व्यय का उच्चतम आवंटन किया है?

Ans
- ✔ 1. रेलवे
- ✗ 2. जल शक्ति
- ✗ 3. शिक्षा
- ✗ 4. आवास और शहरी मामले

Question ID : **630680197796**
Status : **Not Answered**
Chosen Option : **--**

Q.2 निम्नलिखित में से किसने शुद्धि आंदोलन प्रारंभ किया था?

Ans
- ✔ 1. स्वामी दयानंद सरस्वती
- ✗ 2. ज्योतिराव गोविंदराव फुले
- ✗ 3. रामकृष्ण परमहंस
- ✗ 4. बी. आर. अम्बेडकर

Question ID : **630680197794**
Status : **Answered**
Chosen Option : **1**

Q.3 मूल रूप से 1950 में भारतीय संविधान में कितने मौलिक अधिकार शामिल किए गए थे?

Ans ✗ 1. 6

✗ 2. 8

✗ 3. 9

✓ 4. 7

Question ID : **630680197800**
Status : **Answered**
Chosen Option : **4**

Q.4 निम्नलिखित में से कौन-सा संघ एशेलमिन्थेस (Phylum Aschelminthes) का उदाहरण है?

Ans ✓ 1. एस्केरिस

✗ 2. तिलचट्टा

✗ 3. झींगा

✗ 4. बिच्छू

Question ID : **630680197799**
Status : **Answered**
Chosen Option : **1**

Q.5 जनवरी 2023 तक प्राप्त जानकारी के अनुसार, निम्नलिखित में से किस राज्य में विधान परिषद है?

Ans ✗ 1. विधान परिषद, राजस्थान

✗ 2. विधान परिषद, केरल

✓ 3. विधान परिषद, उत्तर प्रदेश

✗ 4. विधान परिषद, असम

Question ID : **630680197801**
Status : **Answered**
Chosen Option : **3**

Q.6 मनिका बत्रा निम्नलिखित में से किस खेल से संबंधित है?

Ans ✗ 1. बैडमिंटन

✗ 2. हॉकी

✗ 3. क्रिकेट

✓ 4. टेबल टेनिस

Question ID : **630680197802**
Status : **Answered**
Chosen Option : **2**

Q.7 केंद्रीय बजट 2023-24 के अनुसार, रेल मंत्रालय के लिए 2022-23 के संशोधित अनुमान की तुलना में बजट व्यय अनुमान का कितना प्रतिशत बढ़ाया गया है?

Ans   ✗ 1. 30.5%

   ✔ 2. 48.6%

   ✗ 3. 24.7%

   ✗ 4. 12.8%

Question ID : **630680197797**
Status : **Not Answered**
Chosen Option : **--**

Q.8 निम्नलिखित में से कौन-सा भारत सरकार की गोबरधन (GOBARdhan) योजना में " GOBAR " का पूर्ण रूप है?

Ans   ✗ 1. General, Organic, and Biological Agro Resources (जनरल, ऑर्गेनिक एंड बायोलोजिकल एग्रो रिसोर्सेस)

   ✔ 2. Galvanizing Organic Bio-Agro Resources (गैल्वनाइजिंग ऑर्गेनिक बायो-एग्रो रिसोर्सेज)

   ✗ 3. Garbage of Biological and Agricultural Resources (गार्बेज ऑफ बायोलोजिकल एंड एग्रीकल्चरल रिसोर्सेस)

   ✗ 4. Garbage of Organic Bio-Agro Resources (गार्बेज ऑफ ऑर्गेनिक बायो-एग्रो रिसोर्सेस)

Question ID : **630680197793**
Status : **Answered**
Chosen Option : **1**

Q.9 प्रसिद्ध गेटवे ऑफ इंडिया का निर्माण इंडो-सरैसेनिक (Indo-Saracenic) शैली की वास्तुकला में पीले पत्थर से किया गया था और यह वर्ष _____ में पूरा हुआ था।

Ans   ✗ 1. 1921

   ✗ 2. 1932

   ✗ 3. 1928

   ✔ 4. 1924

Question ID : **630680197795**
Status : **Not Answered**
Chosen Option : **--**

Q.10 Which of the following schemes is focused on mangrove plantations along the coastline according to Union Budget 2023-24?

Ans   ✔ 1. MISHTI

   ✗ 2. UMANG

   ✗ 3. JUNGAL

   ✗ 4. SAMARTH

Question ID : **630680197798**
Status : **Answered**
Chosen Option : **2**

Section : **English Language**

Q.1 **Select the most appropriate meaning of the given idiom.**

Bag of bones

Ans ✔ 1. A very thin person

✘ 2. A bag full of useless things

✘ 3. A pot full of ashes of a dead person

✘ 4. An impractical person

Question ID : **630680197807**
Status : **Answered**
Chosen Option : **1**

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.**

The film Devdas is notable / for its extravagent settings / and the costumes of the actors.

Ans ✔ 1. for its extravagent settings and

✘ 2. No error

✘ 3. the costumes of the actors

✘ 4. The film Devdas is notable

Question ID : **630680197806**
Status : **Answered**
Chosen Option : **4**

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

Apple-pie order

Ans ✘ 1. Prepared deliciously

✔ 2. Arranged neatly

✘ 3. Managed timely

✘ 4. Completed systematically

Question ID : **630680197808**
Status : **Answered**
Chosen Option : **2**

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

They had a/an _____ (sumptuous) dinner with their friends at the Taj Palace last evening.

Ans ✘ 1. economical

✔ 2. luscious

✘ 3. homely

✘ 4. wanting

Question ID : **630680197805**
Status : **Answered**
Chosen Option : **2**

Q.5 Select the most appropriate option to fill in the blank.

Everyone will have easy access _____ the internet once Wi-Fi is installed in the building.

Ans ✔ 1. to

✘ 2. of

✘ 3. at

✘ 4. in

Question ID : **630680197803**
Status : **Answered**
Chosen Option : **1**

Q.6 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. But in my search for a safer car over the last year, I have developed a deeper appreciation for all that this machine can do.
B. The woman who changed the car game for good — Bertha Benz.
C. While I enjoy road journeys, I've not been very interested in cars beyond their practical use, which is to drive me from point A to B.
D. And the appreciation grew when I learned about the first person ever to take a long road trip.

Ans ✘ 1. ACDB

✘ 2. BDCA

✔ 3. CADB

✘ 4. CBAD

Question ID : **630680197809**
Status : **Answered**
Chosen Option : **2**

Q.7 Select the most appropriate option to fill in the blank.

On Sunday, I enjoyed _____ the documentary on Kohinoor Diamond on Discovery channel.

Ans ✘ 1. by watching

✘ 2. in watching

✔ 3. watching

✘ 4. watch

Question ID : **630680197804**
Status : **Answered**
Chosen Option : **3**

Comprehension:

Read the given passage and answer the questions that follow.

The Ministry of Education has been conducting the annual survey of higher education in India since 2011 where it collects data which include student enrolment, teachers' data, infrastructural information, and financial information, among others.
The All India Survey of Higher Education-2020-21 reports that at the postgraduate level, the maximum number of students are enrolled in Social Science stream (9.41 lakh students, of whom 56.5% are females), followed by Science. Total enrolment in science stream has 6,79,178, out of which 61.3% are females. Management stream has 6,86,001 students enrolled for PG with 43.1% being females.
"Commerce stream has 5.36 lakh students enrolled for PG with 66.5% female students. There are 3.20 lakh students enrolled in PG in Indian languages which are divided into 12 sub-streams. The number of students enrolled in Education stream is 2.06 lakh, in which major contribution is female with 64.4," the report said.
The top states in terms of number of colleges are led by Uttar Pradesh, Maharashtra, and Karnataka respectively.

SubQuestion No : 8

Q.8 Match the different streams with the female enrolment in them.

Streams	Female enrolment
a. Social Science	1. 66.5%
b. Science	2. 43.1%
c. Management	3. 56.5%
d. Commerce	4. 61.3%

Ans ✔ 1. a-3, b-4, c-2, d -1

✘ 2. a-2, b-1, c-3, d-4

✘ 3. a-2, b- 3, c-4, d-1

✘ 4. a -4, b -1, c-2, d-3

Question ID : **630680197812**
Status : **Answered**
Chosen Option : **1**