Delhi Development Authority
(Recruitment Cell)
Advertisement No. 03/2022/Rectt.Cell./Pers./DDA

Participant ID	
Participant Name	
Test Center Name	
Test Date	28/03/2023
Test Time	12:30 PM - 2:30 PM
Subject	Junior Engineer (Civil)

Section : **Domain Questions**

Q.1 Consider the following statements with respect to compass surveying and identify the correct answer.

Statement A: The direction of a survey line measured using a prismatic compass is called magnetic bearing.

Statement B: The direction of a survey line measured using a surveyor compass is called arbitrary bearing.

Ans ✔ 1. Statement A is correct and B is incorrect

✘ 2. Both statements are incorrect

✘ 3. Statement B is correct and A is incorrect

✘ 4. Both statements are correct

Question ID : **630680196720**
Status : **Answered**
Chosen Option : **2**

Q.2 Which of the following properties of cement is determined using Blaine's air permeability test apparatus?

Ans ✘ 1. Residues

✘ 2. Loss on ignition

✘ 3. Initial setting time

✔ 4. Fineness

Question ID : **630680196736**
Status : **Answered**
Chosen Option : **4**

Q.3 As per IS soil classification, organic silts of low plasticity are represented by the symbol_____.

Ans ✔ 1. OL

✘ 2. OP

✘ 3. OH

✘ 4. OI

Question ID : **630680196747**
Status : **Answered**
Chosen Option : **1**

Q.4 Which of the following is the second ruling principle of surveying?

Ans ✔ 1. Working from whole to part

✘ 2. Compass surveying

✘ 3. Working from part to whole

✘ 4. Levelling

Question ID : **630680196719**
Status : **Answered**
Chosen Option : **2**

Q.5 A rectangular strut with a cross-sectional area 18000 mm^2 is subjected to a point load (180 kN) at eccentricity 10 mm in a plane bisecting the thickness as shown in the figure. Calculate the maximum intensity of stress in the section.
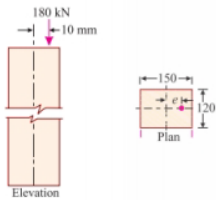
Ans ✘ 1. 10 MPa

✔ 2. 14 MPa

✘ 3. 12 MPa

✘ 4. 6 MPa

Question ID : **630680196762**
Status : **Answered**
Chosen Option : **3**

Q.6 Consider the following statements with respect to the properties of stones and identify the correct answer.

Statement A: Glassy, greasy, dull and metallic are few types of lustre of minerals.

Statement B: The shine on the surface of a mineral and its appearance under reflected light is called as streak.

Ans ✔ 1. Statement A is correct and B is incorrect

✘ 2. Both statements are correct

✘ 3. Statement B is correct and A is incorrect

✘ 4. Both statements are incorrect

Question ID : **630680196711**
Status : **Answered**
Chosen Option : **2**

Q.7 Consider the following statements with respect to the design of RCC structures as per IS 456:2000 and identify the correct answer.

Statement A: Rupture of one or more critical sections is addressed in limit state of serviceability.

Statement B: Deflection in RCC sections is addressed in limit state of serviceability.

Ans ✔ 1. Statement B is correct and A is incorrect

✗ 2. Both statements are correct

✗ 3. Both statements are incorrect

✗ 4. Statement A is correct and B is incorrect

Question ID : 630680196770
Status : **Answered**
Chosen Option : **1**

Q.8 Consider the following statements and identify the correct answer.

Statement A: The Froude's number is used to compare the wave making resistance between bodies of various sizes and shapes.

Statement B: The Froude's number is defined as the square root of the ratio of the inertia force of a flowing fluid to the gravity force.

Ans ✗ 1. Statement B is correct and A is incorrect

✗ 2. Statement A is correct and B is incorrect

✔ 3. Both statements are correct

✗ 4. Both statements are incorrect

Question ID : 630680196758
Status : **Answered**
Chosen Option : **3**

Q.9 As per IS 10500:2012, the acceptable limit of total hardness (as $CaCO_3$) in drinking water shall NOT be more than_____.

Ans ✗ 1. 1000 mg/l

✗ 2. 400 mg/l

✔ 3. 200 mg/l

✗ 4. 600 mg/l

Question ID : 630680196785
Status : **Answered**
Chosen Option : **3**

Q.10 A simply supported beam of span 5 m is loaded with a uniformly distributed load of intensity 10 kN/m over a length of 2 m as shown in the figure. Determine the position (distance measured from A) at which shear force is zero.
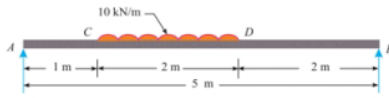
Ans
  ✗ 1. 2.6 m

  ✗ 2. 2.0 m

  ✓ 3. 2.2 m

  ✗ 4. 2.4 m

Q.11 Consider the following statements with respect to contours and identify the correct answer.

Statement A: Two contour lines of different elevations cannot cross each other at any given condition.

Statement B: Contour located close together indicate a steep slope.

Ans
  ✓ 1. Statement B is correct and A is incorrect

  ✗ 2. Both statements are correct

  ✗ 3. Both statements are incorrect

  ✗ 4. Statement A is correct and B is incorrect

Q.12 Identify the INCORRECT statement with respect to 'Laterite stone'.

Ans
  ✗ 1. Laterite stone is not a type of Igneous rock.

  ✗ 2. Laterite stone is suitable for rough stone masonry works.

  ✓ 3. Laterite stone can be split into thin slabs.

  ✗ 4. Laterite stone has porous and cellular structure.

Q.13 An alloy wire of 2 mm^2 cross-sectional area and 15 N weight hangs freely under its own weight. Find the maximum length of the wire, if its extension is NOT to exceed 0.6 mm. Take modulus of elasticity (E) for the wire material as 150 GPa.

Ans ✔ 1. 24 m

✘ 2. 16 m

✘ 3. 18 m

✘ 4. 12 m

Q.14 Which of the following methods of a tachometric survey is also known as the subtense method?

Ans ✘ 1. Fixed hair method

✘ 2. Stadia method

✘ 3. Tangential method

✔ 4. Movable hair method

Q.15 Consider the following statements regarding circular section of a sewer and identify the correct answer.

Statement A: Circular sewer provides the maximum area for a given perimeter and thus provides maximum hydraulic mean depth.

Statement B: Circular section being of uniform curvature all round, offers minimum chances of deposits, when compared to other cross-section shapes.

Ans ✘ 1. Statement A is correct and B is incorrect

✘ 2. Statement B is correct and A is incorrect

✔ 3. Both statements are correct

✘ 4. Both statements are incorrect

Q.16 A simply supported beam is subjected to a uniformly varying load. The shape of its bending moment diagram is _____.

Ans ✔ 1. cubic parabola

✘ 2. parabola

✘ 3. lemniscate

✘ 4. semicircle

Q.17 Calculate the ratio of moments of inertia of a circular lamina of radius 400 mm to that of 200 mm about their respective centroid axes.

Ans   ✔ 1. 16

     ✘ 2. 20

     ✘ 3. 12

     ✘ 4. 14

> Question ID : **630680196730**
> Status : **Answered**
> Chosen Option : **1**

Q.18 As per IS 800:2007, when transverse stiffeners are not provided in a plate girder, the $\frac{d}{t_w}$ ratio of web connected to flanges along both longitudinal edges shall be_____. Where d = depth of the web, t_w = thickness of the web and ε_w = yield stress ratio of web.

Ans   ✔ 1. less than or equal to $200\varepsilon_w$

     ✘ 2. less than or equal to $90\varepsilon_w$

     ✘ 3. less than or equal to $340\varepsilon_w$

     ✘ 4. less than or equal to $270\varepsilon_w$

> Question ID : **630680196780**
> Status : **Answered**
> Chosen Option : **1**

Q.19 _____ is a sewer section that is constructed lower than the adjacent sewer sections and runs full gravity pressure greater than atmosphere.

Ans   ✘ 1. Drop manhole

     ✘ 2. Grease and oil trap

     ✔ 3. Inverted siphon

     ✘ 4. Flushing tank

> Question ID : **630680196783**
> Status : **Answered**
> Chosen Option : **1**

Q.20 A surveyor compass _____.

Ans   ✘ 1.
measures the direction of a survey line in whole circle bearing system

     ✔ 2. consist a metal object vane with a vertical hair

     ✘ 3. consists a needle of broad needle type

     ✘ 4.
consist a graduated card ring which does not rotate with the line of sight

> Question ID : **630680196721**
> Status : **Answered**
> Chosen Option : **4**

Q.21 As per IS 4651(Part 2):1989, if the value of coefficient of earth pressure 'Ko' at rest is 0.4, then the soil type is
_____.

Ans
✔ 1. loose sand

✘ 2. dense sand

✘ 3. hard clay

✘ 4. soft clay

Q.22 Consider the following statements with respect to hydraulic pumps and identify the correct answer.

Statement A: Reciprocating pumps are used for lifting oils from deep wells, as it can build up very high pressures.

Statement B: Discharge capacity of reciprocating pumps is much greater than that of centrifugal pumps.

Ans
✘ 1. Statement B is correct and A is incorrect

✔ 2. Statement A is correct and B is incorrect

✘ 3. Both statements are incorrect

✘ 4. Both statements are correct

Q.23 Which of the following parameters of an RCC beam is used to read out percentage of tension reinforcement in SP-16?

Ans
✘ 1. $\dfrac{M_u}{bd}$

✘ 2. $\dfrac{M_u}{12bd}$

✘ 3. $\dfrac{M_u}{12bd^2}$

✔ 4. $\dfrac{M_u}{bd^2}$

Q.24 Consider the following statements with respect to the methods used to balance a traverse and identify the correct answer.

Statement A: The angles are less affected by the corrections applied by transit method than that by Bowditch's method.

Statement B: The Bowditch's method assumes that the errors in the angular measurements are inversely proportional to the square root of the length of surveyed line.

Ans ✗ 1. Statement A is correct and B is incorrect

✗ 2. Statement B is correct and A is incorrect

✔ 3. Both statements are correct

✗ 4. Both statements are incorrect

Q.25 If the manual compaction is adopted for a manufacture of 15 cm cubical concrete specimen to determine its compressive strength, then the number of strokes to be given per layer is_____.

Ans ✔ 1. 35

✗ 2. 15

✗ 3. 25

✗ 4. 45

Q.26 Consider the following statements with respect to capillarity in liquids and identify the correct statement.

Ans ✗ 1.
Capillarity phenomenon can only lower the liquid surface level in a small tube relative to the adjacent general level of liquid when the tube is held vertically in the liquid.

✗ 2.
Capillarity phenomenon can only raise the liquid surface level in a small tube relative to the adjacent general level of liquid when the tube is held vertically in the liquid.

✗ 3. Capillarity is expressed in terms of N/mm^2.

✔ 4.
Capillarity phenomenon can raise or lower the liquid surface level in a small tube relative to the adjacent general level of liquid when the tube is held vertically in the liquid.

Q.27 A steel rod, 2 m long and 10 mm x 10 mm in cross-section, is subjected to a tensile force of 30 kN. Calculate the elongation of the rod if the modulus of elasticity for the material of rod is 200 GPa.

Ans
- ✗ 1. 1.50 mm
- ✗ 2. 2.750 mm
- ✗ 3. 4.5 mm
- ✔ 4. 3 mm

Question ID : **630680196729**
Status : **Answered**
Chosen Option : **4**

Q.28 When a cantilever beam is subjected to a point load which is directed vertically upwards at its free end, the maximum compressive stresses will be developed at_____.

Ans
- ✗ 1. 0.6 times the depth of the beam measured from the top
- ✗ 2. bottom fibres of the beam
- ✗ 3. one third depth of the beam measured from the bottom
- ✔ 4. top fibres of the beam

Question ID : **630680196728**
Status : **Answered**
Chosen Option : **4**

Q.29 Which of the following types of glass is most suitable for making laboratory equipment and cooking utensils?

Ans
- ✔ 1. Borosilicate glass
- ✗ 2. Lead glass
- ✗ 3. Soda ash glass
- ✗ 4. Tint glass

Question ID : **630680196718**
Status : **Answered**
Chosen Option : **4**

Q.30 Consider the following statements with respect to splices in steel tension members and identify the correct answer.

Statement A: Splices in tension members are used to join two sections when a joint is to be provided, i.e. these replace the members at the joint where it is cut.

Statement B: As per IS specifications, the splice connections should be designed for a force of at least 0.9 times the member design capacity in tension.

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

Question ID : **630680196778**
Status : **Answered**
Chosen Option : **4**

Q.31 Consider the following statements and identify the correct answer.

Statement A: In case of trickling filters, the bacteria film coating the grains of the filter media is stationary and likely to become clogged after some time.

Statement B: In case of activated sludge process, the finer organic suspended particles of sewage are themselves coated with the bacterial film, which is kept moving by the constant agitation.

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

Q.32 Which of the following statements is correct with respect to soil?

Ans
- ✔ 1. Water content can be greater than 100%
- ✗ 2. Water content value is only between 0 and 100%
- ✗ 3. Water content can be less than 0%
- ✗ 4. Water content can never be greater than 100%

Q.33 The sum of measured interior angles should be equal to _____ for a closed traverse with 5 sides.

Ans
- ✔ 1. 540°
- ✗ 2. 280°
- ✗ 3. 640°
- ✗ 4. 720°

Q.34 Which of the following types of cement uses relatively high purity lime for its manufacture?

Ans
- ✔ 1. White cement
- ✗ 2. Portland slag cement
- ✗ 3. High alumina cement
- ✗ 4. Portland Pozzolana cement

Q.35 AS per IS 456:2000, the lap length of steel reinforcement (rebar) in compression shall be equal to _____, but not less than 24 times the diameter of rebar.

Ans

✗ 1. 12 times the diameter of rebar

✗ 2. the development length on tension

✗ 3. 16 times the diameter of rebar

✔ 4. the development length in compression

Question ID : **630680196771**
Status : **Answered**
Chosen Option : **1**

Q.36 A reinforced cement concrete cantilever beam is subjected to a uniformly distributed load with an intensity 'w' kN/m directed vertically upwards. The main reinforcement (longitudinal) shall be provided _____ of beam cross-section. Ignore the self-weight of the beam.

Ans

✗ 1. along the neutral axis

✗ 2. above neutral axis

✗ 3. anywhere in the section of the beam

✔ 4. below neutral axis

Question ID : **630680196768**
Status : **Answered**
Chosen Option : **4**

Q.37 Major energy losses due to friction in a pipe flow is calculated by _____.

Ans

✔ 1. Darcy-Weisbach formula

✗ 2. Navier stokes equation

✗ 3. Euler's equation

✗ 4. Mach model

Question ID : **630680196760**
Status : **Answered**
Chosen Option : **1**

Q.38 According to IS 800:2007, the maximum value of effective slenderness ratio for the compression flange of a beam against lateral torsional buckling is _____.

Ans

✗ 1. 765

✗ 2. 225

✔ 3. 300

✗ 4. 380

Question ID : **630680196781**
Status : **Answered**
Chosen Option : **2**

Q.39 Water is flowing through a pipe having diameter 300 mm and 200 mm at the bottom and upper end, respectively. Calculate the pressure energy per unit weight of the water at the upper end, if the intensity of pressure at upper end is 25 N/cm^2. Consider the acceleration due to gravity as 10 m/sec^2.

Ans
  ✗ 1. 12.5 m
  ✓ 2. 25 m
  ✗ 3. 50 m
  ✗ 4. 40 m

Q.40 Calculate the limiting moment of resistance in accordance with limit state design of a singly reinforced rectangular beam whose width is 200 mm and effective depth is 400 mm. Consider the grade of steel as Fe415 and that of concrete as M20.

Ans
  ✓ 1. 88.32 kN-m
  ✗ 2. 35.28 kN-m
  ✗ 3. 54.72 kN-m
  ✗ 4. 103.32 kN-m

Q.41 The main objective of consolidation test on soil is to determine _____.

Ans
  ✗ 1. water content
  ✗ 2. optimum moisture content and maximum dry density
  ✓ 3. coefficient of compressibility
  ✗ 4. degree of saturation

Q.42 As per IS 456:2000, the theoretical value of the effective length of a compression member which is effectively held in position at both ends and restrained against rotation at one end is _____.

Ans
  ✗ 1. 2.0 times the unsupported length of compression member
  ✗ 2. 0.5 times the unsupported length of compression member
  ✓ 3. 0.7 times the unsupported length of compression member
  ✗ 4. 1.2 times the unsupported length of compression member

Q.43 Calculate the hydraulic radius of a rectangular open channel having a width of 4 m and a depth of 1.5 m.

Ans ✔ 1. 0.857 m

✘ 2. 1.230 m

✘ 3. 1.152 m

✘ 4. 0.595 m

Question ID : **630680196759**
Status : **Answered**
Chosen Option : **4**

Q.44 For a foundation, the allowable bearing pressure depends _____.

Ans ✔ 1.

on both net safe bearing capacity and net safe settlement pressure of soil

✘ 2. on the allowable settlement of soil only

✘ 3.

Neither on the ultimate bearing capacity of soil nor the allowable settlement only

✘ 4. on the ultimate bearing capacity of soil only

Question ID : **630680196753**
Status : **Answered**
Chosen Option : **1**

Q.45 Identify the INCORRECT statement with respect to analysis of trusses using method of sections.

Ans ✘ 1.

The section line can pass through four members in a situation where three members are meeting at a common point.

✘ 2.

The section line can pass through maximum of three members because only three conditions of equilibrium are available.

✔ 3. The section line can pass through members and joints.

✘ 4. The section line can pass through only two members.

Question ID : **630680196779**
Status : **Answered**
Chosen Option : **4**

Q.46 Identify the type of defect in timber due to abnormal growth shown in the figure (labelled as A).

Ans
- ✔ 1. Rind galls
- ✘ 2. Foxiness
- ✘ 3. Checks
- ✘ 4. Shakes

Q.47 If the coefficient of permeability of a soil is 50 mm/sec, then the type of soil is _____.

Ans
- ✔ 1. clean gravel
- ✘ 2. sand
- ✘ 3. clean sand
- ✘ 4. silt

Q.48 As per IS 456:2000, the cross-sectional area of longitudinal reinforcement in a reinforced cement concrete column of size 150 x 300 mm shall NOT be less than_____. Consider limit state method of design.

Ans
- ✘ 1. 420 mm^2
- ✘ 2. 200 mm^2
- ✘ 3. 750 mm^2
- ✔ 4. 360 mm^2

Q.49 Which of the following types of cement is suitable for mass concreting?

Ans ✗ 1. Quick set cement

✔ 2. Low heat cement

✗ 3. White cement

✗ 4. Rapid hardening cement

Question ID : **630680196737**
Status : **Answered**
Chosen Option : **2**

Q.50 Identify the INCORRECT statement with respect to the methods of booking and reducing the elevation of points by observed staff readings.

Ans ✗ 1.
The difference of level between consecutive points is found by comparing staff readings on the two points for same setting of the instrument is taken in rise and fall method.

✗ 2.
The height of instrument method is more rapid, less tedious and simple when compared to the rise and fall method

✗ 3.
'Sum of rise minus sum of fall' shall be equal to 'last reduced level minus first reduced level' to have no errors.

✔ 4.
Addition of a fore sight staff reading with the elevation of bench marks provides the height of the instrument.

Question ID : **630680196725**
Status : **Answered**
Chosen Option : **1**

Q.51 Consider the following statements with respect to the properties of Aspestos and identify the correct answer.

Statement A: Asbestos has high electric conductivity.

Statement B: Asbestos is highly resistant to alkalis.

Ans ✔ 1. Statement B is correct and A is incorrect

✗ 2. Statement A is correct and B is incorrect

✗ 3. Both statements are correct

✗ 4. Both statements are incorrect

Question ID : **630680196716**
Status : **Answered**
Chosen Option : **1**

Q.52 As per IS 516:1959, which of the following is the correct size of flexural strength test specimen made of concrete?

Ans ✗ 1. 100 x 100 x 400 mm

✗ 2. 100 x 100 x 700 mm

✗ 3. 150 x 150 x 500 mm

✔ 4. 150 x 150 x 700 mm

Question ID : **630680196743**
Status : **Answered**
Chosen Option : **4**

Q.53 Calcium chloride is an example of _____ used in making concrete.

Ans

✗ 1. retarding admixture

✔ 2. accelerating admixture

✗ 3. plasticiser

✗ 4. super plasticiser

Q.54 As per IS 456:2000, the minimum cement content to be used in reinforced concrete structures with normal weight aggregates of 20 mm nominal maximum size, at severe exposure condition, is_____.

Ans

✗ 1. 360 kg/m^3

✗ 2. 300 kg/m^3

✔ 3. 320 kg/m^3

✗ 4. 340 kg/m^3

Q.55 As per IS 383:1970, the percentage of fine aggregates (FA) passing through 2.36 mm shall be in the range of _____ for Zone II FA.

Ans

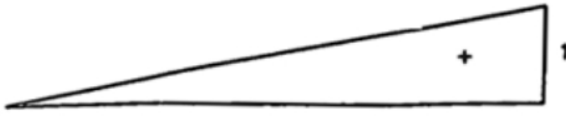✗ 1. 85-100

✔ 2. 75-100

✗ 3. 90-100

✗ 4. 100

Q.56 Select the correct influence line diagram for the given beam for shear force.
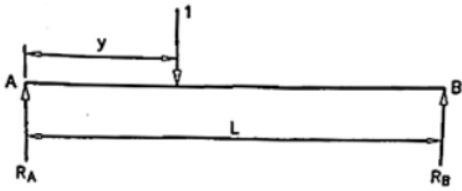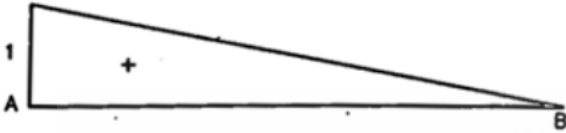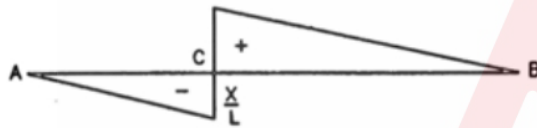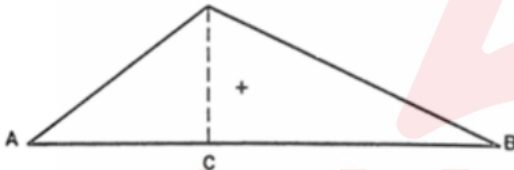

Ans

✗ 1.

✗ 2.

✔ 3.

✗ 4.

Question ID : **630680196769**
Status : **Answered**
Chosen Option : **2**

Q.57 Consider the following statements with respect to modular ratio used in the design of RCC structures and identify the correct answer.

Statement A: The ratio of the modulus of elasticity of steel to that of concrete is called the modular ratio.

Statement B: The concept of 'modular ratio' is used to transform the composite section into an equivalent homogeneous section made up entirely of one material.

Ans

✗ 1. Statement A is correct and B is incorrect

✗ 2. Both statements are incorrect

✗ 3. Statement B is correct and A is incorrect

✔ 4. Both statements are correct

Question ID : **630680196774**
Status : **Answered**
Chosen Option : **4**

Q.58 Which of the following materials possesses a specific gravity value equal to 3.14?

Ans ✔ 1. Ordinary Portland cement

✘ 2. Lead

✘ 3. Water

✘ 4. Pure bitumen

Question ID : **630680196717**
Status : **Answered**
Chosen Option : **1**

Q.59 As per CPHEEO, a residual pressure head of _____ has to be maintained in water distribution systems for a single storey building.

Ans ✘ 1. 17 m

✘ 2. 25 m

✔ 3. 7 m

✘ 4. 4 m

Question ID : **630680196788**
Status : **Answered**
Chosen Option : **1**

Q.60 Calculate the actual velocity of a jet at vena contracta of an orifice, if the theoretical velocity is 20 m/s. Consider the coefficient of velocity of the orifice as 0.98.

Ans ✔ 1. 19.6 m/s

✘ 2. 20 m/s

✘ 3. 17.6 m/s

✘ 4. 18.8 m/s

Question ID : **630680196756**
Status : **Answered**
Chosen Option : **1**

Q.61 Select the correct statement with respect to bearing of a survey line.

Ans ✘ 1.
Surveyor's compass is used to measure true bearing of a line directly.

✘ 2.
True bearing can be measured by using prismatic compass directly.

✘ 3.
Magnetic bearing of a survey line cannot be measured by any instrument.

✔ 4. Arbitrary bearing can be measured by theodolite or sextant.

Question ID : **630680196763**
Status : **Answered**
Chosen Option : **2**

Q.62 The vane shear test on a soil sample to determine its shear strength can be performed _____ .

Ans ✗ 1. only in laboratory

✔ 2. both in field and laboratory

✗ 3. only on field

✗ 4.
neither on field nor in laboratory as it is an empirical method of shear strength estimation

Question ID : **630680196749**
Status : **Answered**
Chosen Option : **3**

Q.63 Which of the following tests is NOT used to determine the workability of conventional type concrete?

Ans ✗ 1. Compacting factor test

✗ 2. Slump test

✗ 3. Vee Bee consistometer test

✔ 4. V funnel test

Question ID : **630680196765**
Status : **Answered**
Chosen Option : **4**

Q.64 The ratio of the volume of coarse aggregate per unit volume of the total aggregate for water to cementitious material of 0.50 is mentioned for _____ zones of sand in IS 10262:2019.

Ans ✗ 1. 5

✔ 2. 4

✗ 3. 3

✗ 4. 2

Question ID : **630680196741**
Status : **Answered**
Chosen Option : **2**

Q.65 The objective of a three-point problem in plane table surveying is _____ .

Ans ✗ 1. trisection

✔ 2. resection

✗ 3. radiation

✗ 4. intersection

Question ID : **630680196723**
Status : **Answered**
Chosen Option : **1**

Q.66 Consider the following statements regarding the disadvantages of partially separate systems and identify the correct answer.

Statement A: In partially separate systems, the cost of pumping is increased as compared to separate systems.

Statement B : In partially separate systems, self-cleansing velocity may not develop in dry weather flow.

Ans ✔ 1. Both statements are correct

✘ 2. Statement A is correct and B is incorrect

✘ 3. Statement B is correct and A is incorrect

✘ 4. Both statements are incorrect

Question ID : **630680196789**
Status : **Answered**
Chosen Option : **1**

Q.67 Convert the direction of a line PQ measured in whole circle bearing system, 75°30', into quadrantal bearing system.

Ans ✘ 1. N 75°30' W

✘ 2. N 255°30' E

✘ 3. N 255°30' W

✔ 4. N 75°30' E

Question ID : **630680196722**
Status : **Answered**
Chosen Option : **4**

Q.68 Calculate the pressure at a point which is at 3 m from the free surface of the liquid having density 1.2×10^3 kg/m^3. Take acceleration due to gravity as 10 m/sec^2.

Ans ✘ 1. 360 N/m^2

✔ 2. 36000 N/m^2

✘ 3. 3600 N/m^2

✘ 4. 360000 N/m^2

Question ID : **630680196755**
Status : **Answered**
Chosen Option : **2**

Q.69 According to the Terzaghi's theory of one-dimensional consolidation, the direction of load applied is in _____.

Ans ✘ 1. three directions and deformation occur in all directions

✘ 2. one direction only and deformation occurs in all directions

✔ 3.
one direction only and deformation occurs only in the direction of application of load

✘ 4.
two directions and deformation occurs only in those two directions

Question ID : **630680196751**
Status : **Answered**
Chosen Option : **3**

Q.70 The workability of concrete for a given volume of water is independent of _____.

Ans

❌ 1. water cement ratio

✅ 2. method of curing

❌ 3. shape of aggregates used

❌ 4. admixtures

Q.71 Calculate the moment of inertia of a rectangular lamina with respect to its base using parallel axis theorem. Take base width as 150 mm and height as 200 mm.

Ans

✅ 1. $4.0 \times 10^8 \text{ mm}^4$

❌ 2. $2.6 \times 10^8 \text{ mm}^4$

❌ 3. $1.0 \times 10^8 \text{ mm}^4$

❌ 4. $3.2 \times 10^8 \text{ mm}^4$

Q.72 _____ is an example of a surface water source for water supply.

Ans

✅ 1. Estuary

❌ 2. Aquifer

❌ 3. Rock fissures water

❌ 4. Recharged ground water

Q.73 Identify the INCORRECT statement with respect to constituents of good brick earth.

Ans

❌ 1. Magnesium in brick earth imparts a yellow tint to the brick.

✅ 2.
Good brick earth should contain about 10% to 13% of Magnesia.

❌ 3.
Alumina is responsible for plasticity characteristic of earth, which is important in moulding operation.

❌ 4.
Good brick earth should contain about 20% to 30% of alumina.

Q.74 Which of the following tests is conducted on coarse aggregates to determine their toughness?

Ans
✗ 1. Specific gravity test

✗ 2. Crushing strength test

✔ 3. Impact value test

✗ 4. Abrasion value test

Question ID : **630680196739**
Status : **Answered**
Chosen Option : **3**

Q.75 Which of the following conditions is correct for a statically indeterminate truss (internally) with 'm' number of two force members and 'j' number of joints?

Ans
✗ 1. $m + 3 < 2j$

✗ 2. $m + 3 = 3j$

✔ 3. $m + 3 > 2j$

✗ 4. $m + 6 > 3j$

Question ID : **630680196767**
Status : **Answered**
Chosen Option : **3**

Q.76 A cantilever beam of span 3.5 m is subjected to two point loads as shown in the figure. Calculate the slope at point A. Take EI as constant throughout the beam length.
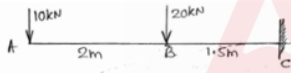
Ans
✔ 1. $-\dfrac{83.75}{EI}$

✗ 2. $-\dfrac{122.25}{EI}$

✗ 3. $-\dfrac{60.50}{EI}$

✗ 4. $-\dfrac{100}{EI}$

Question ID : **630680196766**
Status : **Answered**
Chosen Option : **2**

Q.77 A soil sample weighs 120 g and after oven drying the weight reduces to 90 g. What will be the weight of water before oven drying?

Ans
- ✔ 1. 30 g
- ✘ 2. 210 g
- ✘ 3. 90 g
- ✘ 4. 120 g

Question ID : **630680196745**
Status : **Answered**
Chosen Option : **1**

Q.78 Which of the following statements is INCORRECT with respect to the assumptions made in the derivation of Euler's critical load on columns?

Ans
- ✔ 1.

The member attains its maximum bending moment before buckling.

- ✘ 2.

The column is perfectly straight with no initial crookedness.

- ✘ 3. The load acting on the column is axial.

- ✘ 4.

Modulus of elasticity E and moment of inertia I of the column are constant.

Question ID : **630680196777**
Status : **Answered**
Chosen Option : **1**

Q.79 Consider the following statements with respect to shear stress distribution in a beam cross-section and identify the correct answer.

Statement A: The maximum intensity of shear stress in a rectangular beam cross-section at neutral axis is equal to 1.5 times the average shear stress.

Statement B: The maximum intensity of shear stress in a triangular beam cross-section is equal to 1.5 times the average shear stress.

Ans
- ✘ 1. Statement A is correct and B is incorrect
- ✘ 2. Both statements are incorrect
- ✔ 3. Both statements are correct
- ✘ 4. Statement B is correct and A is incorrect

Question ID : **630680196735**
Status : **Answered**
Chosen Option : **3**

Q.80 _____ is adopted in water treatment, when there is an epidemic in the locality.

Ans ✔ 1. Super chlorination

✘ 2. Break point chlorination

✘ 3. Pre-chlorination

✘ 4. Double chlorination

Section : **Reasoning**

Q.1 उस विकल्प का चयन करें जो तीसरे पद से उसी प्रकार संबंधित है जिस प्रकार दूसरा पद पहले पद से संबंधित है।

(शब्दों को सार्थक अंग्रेजी शब्द माना जाना चाहिए और शब्द में अक्षरों की संख्या/व्यंजनों/स्वरों की संख्या के आधार पर एक दूसरे से संबंधित नहीं होना चाहिए।)

घोड़ा (HORSE) : हिनहिनाना (NEIGH) :: बकरी (GOAT) : ?

Ans ✔ 1. मिमियाना (BLEAT)

✘ 2. घुरघुराना (GRUNT)

✘ 3. पटपटाना (PATTER)

✘ 4. टर्राना (CROAK)

Q.2 Among D, E, F, G, H, I, J and K, J is the sister of F. E is the daughter of G. H is the sister of D and K. F is the mother of H. K is the wife of G. I is the sister of E. How is F related to G?

Ans ✘ 1. Sister's daughter

✔ 2. Wife's mother

✘ 3. Sister

✘ 4. Daughter

Q.3 Select the correct mirror image of the given figure when the mirror is placed at the right side.

Ans

✗ 1.

✗ 2.

✔ 3.

✗ 4.
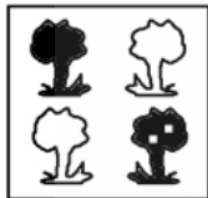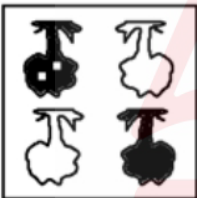
Q.4 Eight friends, A, B, C, D, E, F, G and H, were sitting around a square table, facing the centre. Four of them were sitting at the corners, while four were sitting at the exact centre of the sides. H and F were diagonally opposite to each other. There were only six people sitting between D and B, three on each side. A and G were not at the corners but had only D in between them. C and E were not at the corners but had only B in between them. F is at the immediate right of A. C is at the immediate left of H. Who sat at the opposite of C?

Ans
✗ 1. F
✗ 2. E
✗ 3. G
✔ 4. A

Q.5 Study the given diagram carefully and answer the question that follows. The numbers in different sections indicate the number of persons with different profession in a city.
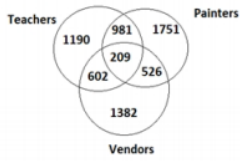
How many vendors are there who are also painters?

Ans ✔ 1. 735

✗ 2. 603

✗ 3. 589

✗ 4. 600

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

5, 10, 8, 16, 14, 28, ?

Ans ✗ 1. 30

✔ 2. 26

✗ 3. 56

✗ 4. 24

Q.7 If '×' means 'subtraction', '÷' means 'division', '−' means 'addition' and '+' means 'multiplication', what will be the value of the following expression?

$20 + [\{(16 - 12) \times (2 \div 4)\} + (18 \times 13)]$

Ans ✗ 1. 1

✗ 2. 2

✔ 3. 5

✗ 4. 10

Q.8 In a certain code language, 'CAT' is coded as 'BDZBSU' and 'FAN' is coded as 'EGZBMO'. How will 'COP' be coded in that language?

Ans
   ✗ 1. BDNQOQ

   ✗ 2. BDNPPQ

   ✗ 3. BDNOOQ

   ✓ 4. BDNPOQ

Q.9 Select the figure from among the given options that can replace the question mark (?) in the following series.

Ans

✓ 1.

✗ 2.

✗ 3.

✗ 4.
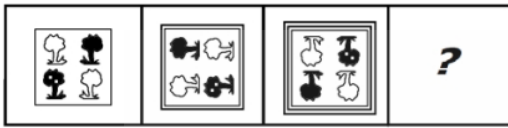
Q.10 Select correct combination of mathematical signs that can sequentially replace the 'A' and balance the given equation.

18 A 12 A 24 A 3 A 3 A 4 A 2

Ans
  ✔ 1. $-, +, \div, =, \times, +$

  ✘ 2. $+, -, \div, \times, =, +$

  ✘ 3. $-, +, \div, \times, =, +$

  ✘ 4. $-, +, \times, =, \div, +$

Section : **Quantitative Aptitude**

Q.1 If $1 + \dfrac{5x}{1 - \dfrac{1}{2 + \frac{2x}{1-x}}} = 3$, then the value of $'x'$ is:

Ans
  ✘ 1. $\dfrac{3}{5}$

  ✘ 2. $\dfrac{2}{3}$

  ✔ 3. $\dfrac{1}{4}$

  ✘ 4. $\dfrac{4}{7}$

Q.2 P can do a certain job in 32 days. Q is 60% more efficient than P. In how many days can P and Q together do the same job?

Ans
  ✘ 1. $14\dfrac{8}{17}$

  ✘ 2. $15\dfrac{7}{15}$

  ✘ 3. $13\dfrac{2}{11}$

  ✔ 4. $12\dfrac{4}{13}$

Q.3 If the curved surface area of a cone is 9240 cm^2 and the radius of its base is 42 cm, then the volume of the cone is:

Ans

✔ 1. 103488 cm^3

✘ 2. 114536 cm^3

✘ 3. 131294 cm^3

✘ 4. 125352 cm^3

Question ID : **630680196809**
Status : **Answered**
Chosen Option : **1**

Q.4 The cost price of an article is increased by 20% and then, two successive discounts of 7.5% each are allowed. The selling price of the article is:

Ans

✘ 1. 2.675% less than the CP

✔ 2. 2.675% more than the CP

✘ 3. 3.325% less than the CP

✘ 4. 3.325% more than the CP

Question ID : **630680196805**
Status : **Answered**
Chosen Option : **2**

Q.5 A train running at a speed of 60 km/h takes 18 seconds to pass a platform. Next, it takes 12 seconds to pass a man walking at a speed of 6 km/h in the same direction in which the train is running. The length of the platform is:

Ans

✘ 1. 160 m

✘ 2. 150 m

✔ 3. 120 m

✘ 4. 140 m

Question ID : **630680196806**
Status : **Answered**
Chosen Option : **2**

Q.6 The value of $25 + 5$ of $\{12 + 3[5 - 2(7 - 3) + 3] - 18\} \div 3$ is:

Ans

✘ 1. 10

✘ 2. 20

✘ 3. 25

✔ 4. 15

Question ID : **630680196800**
Status : **Answered**
Chosen Option : **4**

Q.7 If the numerator of a fraction is decreased by 8% and its denominator is increased by 10%, the value of the fraction becomes $\frac{2}{5}$. What is the original fraction?

Ans

✗ 1. $\dfrac{12}{19}$

✔ 2. $\dfrac{11}{23}$

✗ 3. $\dfrac{16}{25}$

✗ 4. $\dfrac{13}{29}$

Question ID : **630680196804**
Status : **Answered**
Chosen Option : **2**

Q.8 In One Day International World Cup cricket matches, five bowlers have taken 16 wickets each, seven bowlers have taken 20 wickets each, twelve bowlers have taken 25 wickets each, eighteen bowlers have taken 30 wickets each and eight bowlers have taken 35 wickets each. The mean number of wickets taken by bowlers is:

Ans

✗ 1. 28.8

✔ 2. 26.8

✗ 3. 27.5

✗ 4. 29.4

Question ID : **630680196803**
Status : **Answered**
Chosen Option : **2**

Q.9 The average of 35 numbers is 44. If three of these numbers 25, 30 and 35 are discarded, then the average of the remaining numbers is:

Ans

✗ 1. 44.4275

✗ 2. 46.1225

✔ 3. 45.3125

✗ 4. 47.2475

Question ID : **630680196802**
Status : **Answered**
Chosen Option : **3**

Q.10 What is the volume of a sphere whose surface area is 124.74 cm^2?

Ans ✗ 1. 133.123 cm^3

✗ 2. 129.325 cm^3

✗ 3. 128.324 cm^3

✓ 4. 130.977 cm^3

Question ID : **630680196808**
Status : **Answered**
Chosen Option : **4**

Section : **General Awareness**

Q.1 Which of the following Articles of the Constitution of India talks about 'Review of judgments or orders by the Supreme Court'?

Ans ✓ 1. Article 137

✗ 2. Article 130

✗ 3. Article 127

✗ 4. Article 131

Question ID : **630680196818**
Status : **Answered**
Chosen Option : **3**

Q.2 Who among the following pressed the British authorities to pass the Hindu Widows' Remarriage Act in 1856?

Ans ✗ 1. Raja Ram Mohan Roy

✗ 2. Bipin Chandra Pal

✓ 3. Ishwar Chandra Vidyasagar

✗ 4. Swami Vivekananda

Question ID : **630680196811**
Status : **Answered**
Chosen Option : **1**

Q.3 With which of the following payment companies has Nexo, a London-based cryptocurrency lender, joined hands in order to launch the world's first 'crypto-backed' payment card?

Ans ✗ 1. American Express

✗ 2. Visa

✓ 3. Mastercard

✗ 4. RuPay

Question ID : **630680196814**
Status : **Answered**
Chosen Option : **1**

Q.4 Which of the following states did Kerala beat to lift their 7th Santosh Trophy title?

Ans ✗ 1. Tamil Nadu

     ✗ 2. Karnataka

     ✗ 3. Telangana

     ✓ 4. West Bengal

Question ID : **630680196819**
Status : **Answered**
Chosen Option : **4**

Q.5 Which of the following monuments is NOT situated in Manipur?

Ans ✓ 1. Siddheshwar Dham

     ✗ 2. Elephant Palace

     ✗ 3. Kangla Fort

     ✗ 4. Shree Govindaji Temple

Question ID : **630680196812**
Status : **Answered**
Chosen Option : **4**

Q.6 An increase of _____ in mangrove cover has been observed in Forest Survey report–2021 as compared to the previous assessment of 2019.

Ans ✗ 1. 19 km^2

     ✗ 2. 25 km^2

     ✗ 3. 22 km^2

     ✓ 4. 17 km^2

Question ID : **630680196815**
Status : **Answered**
Chosen Option : **3**

Q.7 Ariboflavinosis is another name for the deficiency of _____.

Ans ✗ 1. niacin

     ✓ 2. riboflavin

     ✗ 3. thiamin

     ✗ 4. pyridoxine

Question ID : **630680196816**
Status : **Answered**
Chosen Option : **2**

Q.8 Which of the following small finance banks has tied up with Kyndryl for digital and IT transformation?

Ans ✔ 1. Suryoday Small Finance Bank

✘ 2. Ujjivan Small Finance Bank

✘ 3. AU Small Finance Bank

✘ 4. Capital Small Finance Bank

Question ID : **630680196813**
Status : **Answered**
Chosen Option : **3**

Q.9 In which of the following states/union territories has NITI Aayog released the AIM-PRIME (Program for Researchers in Innovation, Market Readiness and Entrepreneurship) Playbook?

Ans ✘ 1. Maharashtra

✘ 2. Karnataka

✔ 3. New Delhi

✘ 4. Chandigarh

Question ID : **630680196810**
Status : **Answered**
Chosen Option : **2**

Q.10 Which of the following is the 9th Fundamental Duty of citizens as per the Constitution of India?

Ans ✔ 1. To safeguard public property and abjure violence

✘ 2. To uphold and protect the sovereignty, unity and integrity of India

✘ 3. To value and preserve the rich heritage of the country's composite culture

✘ 4. To develop scientific temper, humanism and the spirit of inquiry and reform

Question ID : **630680196817**
Status : **Answered**
Chosen Option : **1**

Section : **English Language**

Q.1 Sentences of a paragraph are given below in jumbled order. Select the option that gives their correct order.

A. In Babylon, when people agreed to a business contract, they pressed their fingerprints into the clay in which the contract was written.
B. If you enjoy watching crime shows on TV, you know that fingerprints play a large role in identifying people.
C. But, you might be surprised to find out that using fingerprints for identification is not a new science.
D. In fact, it is very old –– dating back at least as far as 1885-1913 BCE.

Ans ✘ 1. ACDB

✘ 2. BADC

✘ 3. ABDC

✔ 4. BCDA

Question ID : **630680196826**
Status : **Answered**
Chosen Option : **4**

Q.2 Select the most appropriate option to fill in the blank.

He is _____ a disadvantage when it comes to speaking English in a group.

Ans ✗ 1. on

✗ 2. in

✓ 3. at

✗ 4. with

Question ID : **630680196821**
Status : **Answered**
Chosen Option : **3**

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

Turn the tables

Ans ✓ 1. To reverse the situation to one's advantage

✗ 2. To help someone set up a business

✗ 3. To cause problems for others

✗ 4. To arrange the tables differently

Question ID : **630680196825**
Status : **Answered**
Chosen Option : **1**

Q.4 Select the most appropriate option to fill in the blank.

In spite of not liking his job, he has stuck to it as _____ salary is good.

Ans ✗ 1. an

✗ 2. No word required

✓ 3. the

✗ 4. a

Question ID : **630680196820**
Status : **Answered**
Chosen Option : **3**

Q.5 Parts of the following sentence have been given as options. Select the option that contains an error in spelling. If you don't find any error, mark 'No error' as your answer.

The children were quarelling when suddenly they realised that the teacher had entered the class.

Ans ✓ 1. The children were quarelling

✗ 2. No error

✗ 3. that the teacher had entered the class.

✗ 4. when suddenly they realized

Question ID : **630680196823**
Status : **Answered**
Chosen Option : **3**

Q.6 Select the most appropriate meaning of the given idiom.

Shed light on

Ans   ✔ 1. To clarify a situation

     ✖ 2. To reduce weight

     ✖ 3. To turn the light on

     ✖ 4. To reconnect electricity

> Question ID : **630680196824**
> Status : **Answered**
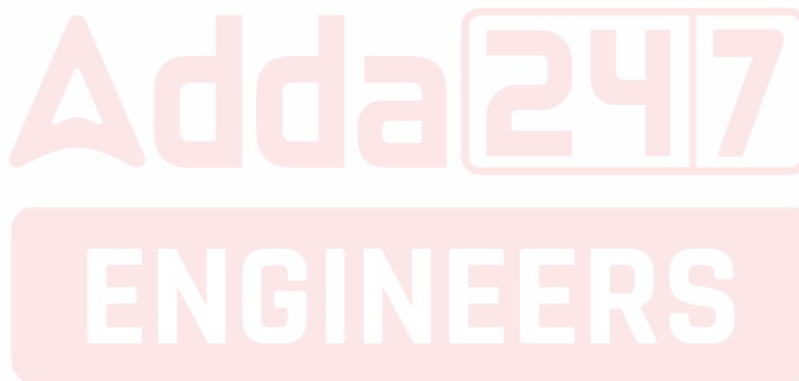> Chosen Option : **1**

Q.7 Select the most appropriate synonym of the given word to fill in the blank.

Redundant
Students tend to fill up pages by writing _____ points in their answers.

Ans   ✖ 1. frivolous

     ✔ 2. superfluous

     ✖ 3. essential

     ✖ 4. superficial

> Question ID : **630680196822**
> Status : **Answered**
> Chosen Option : **3**

Comprehension:

Read the following passage and answer the questions that follow.

It is a common belief that the tradition of Mother's Day began in the West, originating from Greek and Roman spring festivals dedicated to maternal goddesses and Mothering Sunday observed in the European Christian tradition since the 1600s. But in fact, the first celebrations of motherhood occurred in Egypt as part of a Pharaonic tradition.

Ancient Egyptians held an annual festival to honour Isis, one of the most popular and enduring goddesses of ancient Egypt who represented the ideal mother and wife and was the patroness of nature and magic. Isis was regarded as the mother of all pharaohs and became symbolic of motherhood, and an annual festival was held in her honour. The ancient Greeks celebrated a day to honour Rhea, the mother of the gods. The Romans built a temple to the mother of the gods, named Magna Mater. They also held a celebration every March in her honour. The early Christians celebrated a day to honour Mary, the mother of Jesus. Later, English Christians expanded the celebration to honour all mothers. This English holiday was called 'Mothering Sunday'.

The birth of the modern Mother's Day in the United States is attributed to Anna Jarvis, who advocated for an official holiday that would honour the sacrifice of all mothers. Inspired by her own late mother, an activist and social worker, Jarvis held the first Mother's Day in 1908 as a memorial service for her mother at a Methodist Church in West Virginia. In 1914, she and her supporters succeeded in making it a national holiday celebrated on the second Sunday in May.

Today, Mother's Day is celebrated all over the world, usually in the months of March or May. The traditions vary in every country, but giving gifts, flowers or making meals to showing gratitude to mothers is present everywhere.

SubQuestion No : 8

Q.8   The main theme of the passage is:

Ans   ✗ 1. how the Mother's day holiday started in America

✗ 2. how Mother's Day is celebrated over the world

✗ 3. how Mother's Day originated in Egypt

✔ 4. how Mother's Day developed from ancient to modern times

Question ID : 630680196828
Status : **Answered**
Chosen Option : **4**

Comprehension:

Read the following passage and answer the questions that follow.

It is a common belief that the tradition of Mother's Day began in the West, originating from Greek and Roman spring festivals dedicated to maternal goddesses and Mothering Sunday observed in the European Christian tradition since the 1600s. But in fact, the first celebrations of motherhood occurred in Egypt as part of a Pharaonic tradition.

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Today, Mother's Day is celebrated all over the world, usually in the months of March or May. The traditions vary in every country, but giving gifts, flowers or making meals to showing gratitude to mothers is present everywhere.

SubQuestion No : 9

Q.9 **Isis was considered all of the following EXCEPT:**

Ans ✗ 1. symbolic of motherhood

✔ 2. mother of all gods

✗ 3. mother of all pharaohs

✗ 4. patroness of nature

Question ID : **630680196829**
Status : **Answered**
Chosen Option : **2**

Comprehension:

Read the following passage and answer the questions that follow.

It is a common belief that the tradition of Mother's Day began in the West, originating from Greek and Roman spring festivals dedicated to maternal goddesses and Mothering Sunday observed in the European Christian tradition since the 1600s. But in fact, the first celebrations of motherhood occurred in Egypt as part of a Pharaonic tradition.

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Today, Mother's Day is celebrated all over the world, usually in the months of March or May. The traditions vary in every country, but giving gifts, flowers or making meals to showing gratitude to mothers is present everywhere.

SubQuestion No : 10

Q.10 Mothering Sunday was celebrated by the English Christians to honour:

Ans ✗ 1. English mothers

✗ 2. mother of the gods

✔ 3. all mothers

✗ 4. Mary, the mother of Jesus

Question ID : 630680196830
Status : **Answered**
Chosen Option : **4**