



Teachingninja.in



Latest Govt Job updates



Private Job updates



Free Mock tests available

Visit - teachingninja.in

DDA JE Civil

**Previous Year Paper
29 Mar, 2023 Shift 2**





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

Participant ID	
Participant Name	
Test Center Name	
Test Date	29/03/2023
Test Time	12:30 PM - 2:30 PM
Subject	Junior Engineer (Civil)

Section : Domain Questions

Q.1 A simple Pitot tube can be used to measure which of the following quantities?

1. Static head
2. Datum head
3. Dynamic head
4. Friction head
5. Total head

Ans 1. 1, 2 and 4
 2. 1, 3 and 5
 3. 2, 3 and 5
 4. 2, 3 and 4

Question ID : 630680197255

Status : Answered

Chosen Option : 2

Q.2 What is the minimum grade of concrete that is used in the case of reinforced cement concrete when exposed to a sea coast directly?

Ans 1. M25
 2. M40
 3. M20
 4. M30

Question ID : 630680197241

Status : Marked For Review

Chosen Option : 2

Q.3 Which of the following statements is correct when the marine deposits are under a very large depth of water?

Ans 1. It has high effective stress and high shear strength
 2. It has low effective stress and low shear strength
 3. It has high effective stress and low shear strength
 4. It has low effective stress and high shear strength

Question ID : 630680197248

Status : Answered

Chosen Option : 4

Q.4 The maximum effective slenderness ratio of steel members always in tension (other than pre-tensioned members) is _____.

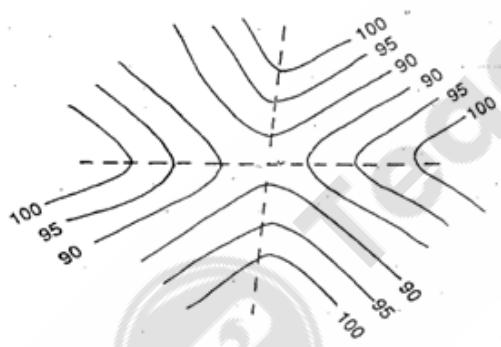
Ans 1. 400
 2. 350
 3. 180
 4. 250

Question ID : 630680197274

Status : Answered

Chosen Option : 1

Q.5 Identify the contour map shown in the given figure.



Ans 1. Depression
 2. Ridge
 3. Valley
 4. Saddle

Question ID : 630680197220

Status : Answered

Chosen Option : 1

Q.6 The flexural strength of concrete for M25 grade concrete as per IS : 456-2000 is:

Ans

- 1. 3.0 N/mm^2
- 2. 2.5 N/mm^2
- 3. 3.5 N/mm^2
- 4. 2.0 N/mm^2

Question ID : 630680197239

Status : Answered

Chosen Option : 3

Q.7 The angles of a triangle lie between _____ to form a well-conditioned triangle in a chain survey.

Ans

- 1. 30° and 120°
- 2. 15° and 135°
- 3. 60° and 180°
- 4. 20° and 150°

Question ID : 630680197218

Status : Answered

Chosen Option : 1

Q.8 As per the Central Pollution Control Board norms, the maximum permissible limit of 3 days biochemical oxygen demand at 27°C in wastewater effluent when discharged into an inland river or stream is _____.

Ans

- 1. 30 mg/l
- 2. 350 mg/l
- 3. 500 mg/l
- 4. 100 mg/l

Question ID : 630680197281

Status : Not Answered

Chosen Option : --

Q.9 The addition of chlorine at intermediate points generally at service reservoirs and booster pumping stations in water supply distribution is called _____.

Ans

- 1. post-chlorination
- 2. de-chlorination
- 3. re-chlorination
- 4. pre-chlorination

Question ID : 630680197288

Status : Marked For Review

Chosen Option : 1

Q.10 A cantilever rectangular beam has 40 mm width and 60 mm depth. If the cantilever is subjected to a point load of 6 kN at the free end and the bending stress is not to exceed 40 MPa, find the span of the cantilever beam.



Ans 1. 180 mm
 2. 210 mm
 3. 140 mm
 4. 160 mm

Question ID : 630680197231

Status : Answered

Chosen Option : 4

Q.11 Which of the following pairs is INCORRECTLY matched with respect to constituents of paint?

Ans 1. Solvent -> Naptha
 2. Base -> White lead
 3. Pigment -> Copper sulphate
 4. Vehicle -> Lithophone

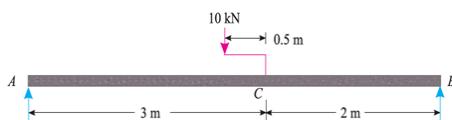
Question ID : 630680197213

Status : Marked For Review

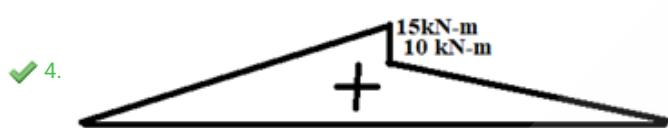
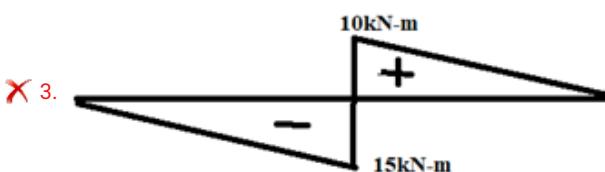
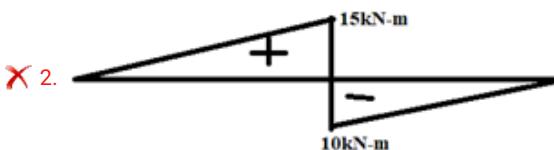
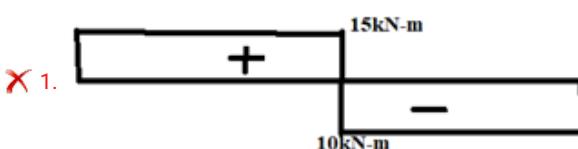
Chosen Option : 4



Q.12 A simply supported beam of 5 m carries a load of 100 kN on a bracket welded to the beam as shown in the given figure. Select the correct bending moment diagram of the beam.



Ans



Question ID : 630680197234

Status : Answered

Chosen Option : 4

Q.13 According to IS : 10500-2012, the maximum permissible limit of total alkalinity as calcium carbonate present in drinking water in the absence of an alternate source of water is:

Ans 1. 1000 mg/l

2. 200 mg/l

3. 400 mg/l

4. 600 mg/l

Question ID : 630680197280

Status : Answered

Chosen Option : 4

Q.14 A survey is to be made with a chain or tape having its true length L and its incorrect length L' . Let the actual volume be V and measured volume be V' . Then, the correction for volume is given by:

Ans

1. $V = V' \left[\frac{L}{L'} \right]^2$

2. $V = V' \left[\frac{L'}{L} \right]^2$

3. $V = V' \left[\frac{L'}{L} \right]^3$

4. $V = V' \left[\frac{L}{L'} \right]^3$

Question ID : 630680197221

Status : Answered

Chosen Option : 3

Q.15 What is the function of the chemical SO_3 present in Ordinary Portland cement?

Ans

- 1. Imparts colour and hardness
- 2. Makes cement sound
- 3. Responsible for quick setting
- 4. Gives strength

Question ID : 630680197212

Status : Answered

Chosen Option : 2

Q.16 When a rectangular lamina is immersed in water at a depth of 75 mm vertically, what is the depth of centre of pressure of the lamina?

Ans

- 1. 112.5 mm
- 2. 18.75 mm
- 3. 37.5 mm
- 4. 50.0 mm

Question ID : 630680197254

Status : Answered

Chosen Option : 4

Q.17 Which of the following is the performance efficiency of slow sand filter?

1. It removes about 98 to 99% bacteria.
2. It removes turbidity to the extent of 50 PPM.
3. It does not remove colour of raw water.
4. It removes about 95% colloidal matter.

Ans ✓ 1. 1 and 2

✗ 2. 3 and 4

✗ 3. 2 and 3

✗ 4. 1 and 4

Question ID : 630680197286

Status : Answered

Chosen Option : 3

Q.18 All the following are the assumptions made in Terzaghi's theory of consolidation EXCEPT:

Ans ✗ 1. Darcy's law is valid throughout the consolidation process

✓ 2. the coefficient of permeability of soil varies at all points during the entire period of consolidation

✗ 3. the soil is fully saturated

✗ 4. the soil is homogeneous and isotropic

Question ID : 630680197249

Status : Answered

Chosen Option : 2

Q.19 The phenomenon of producing higher stresses near the junction of a web and lower stresses at points away from the web of a steel beam is known as _____.

Ans ✗ 1. elastic critical moment

✗ 2. moment of resistance

✓ 3. shear lag

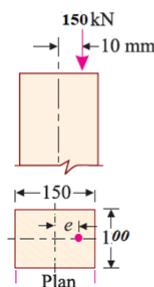
✗ 4. lateral buckling

Question ID : 630680197277

Status : Marked For Review

Chosen Option : 3

Q.20 A rectangular column is 150 mm and 100 mm thick and carries a load of 150 kN at an eccentricity of 10 mm in a plane bisecting the thickness. Find the maximum and minimum intensities of stress in the section.



Ans

- 1. 24 MPa and 10 MPa
- 2. 14 MPa and 6 MPa
- 3. 18 MPa and 8 MPa
- 4. 10 MPa and 4 MPa

Question ID : 630680197233

Status : Answered

Chosen Option : 2

Q.21 For a simply supported beam, the restraint against torsional rotations at supports may be provided by:

- 1. Web of flange cleats
- 2. Vertical stiffeners
- 3. Lateral end frames

Which of the above mentioned points correctly completes the given statement?

Ans

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

Question ID : 630680197278

Status : Marked For Review

Chosen Option : 1



Q.22 Match the type of levelling with its application.

Type of levelling	Process
1. Simple levelling	A. When the differential levelling is done in order to connect a benchmark to the starting point of the alignment of project
2. Differential levelling	B. When the difference of level between two points is determined by setting the level instrument midway between two points
3. Fly levelling	C. The process of taking levels transverse to the direction of longitudinal levelling
4. Cross-sectional levelling	D. When the difference of elevation between the points is large and there are obstacles between the points

Ans X 1. 1-B; 2-C; 3-A; 4-D
✓ 2. 1-B; 2-D; 3-A; 4-C
X 3. 1-C; 2-D; 3-A; 4-B
X 4. 1-B; 2-A; 3-D; 4-C

Question ID : 630680197223

Status : Marked For Review

Chosen Option : 4

Q.23 Which of the following objectives of seasoning of wood is INCORRECT?

1. Reduce the shrinkage and warping after placement in the structure
2. Increase strength, durability and workability
3. Increase its weight
4. Make it difficult to paint

Ans X 1. 1 and 3
X 2. 1 and 2
X 3. 2 and 3
✓ 4. 3 and 4

Question ID : 630680197211

Status : Answered

Chosen Option : 4

Q.24 As per IS : 456-2000, what is the recommended value of effective length of RCC compression member of unsupported length l that is effectively held in position and restrained against rotation at one end and at the other restrained against rotation but not held in position?

Ans ✓ 1. $1.2l$
X 2. $2.0l$
X 3. $1.5l$
X 4. $0.65l$

Question ID : 630680197272

Status : Answered

Chosen Option : 1

Q.25 The bars of nominal diameter 16 mm used in compression for an RCC work consists of M30 grade concrete for which design bond stress is 1.5 N/mm^2 . The stress in bars at design load is 50 N/mm^2 . What is the development length bars as per IS : 456-2000?

Ans 1. 112.55 mm

2. 105.82 mm

3. 108.5 mm

4. 100.5 mm

Question ID : 630680197269

Status : Not Answered

Chosen Option : --

Q.26 The water content of a soil sample can be determined by:

Ans 1. hydrometer method

2. pipette method

3. one-point method

4. pycnometer method

Question ID : 630680197245

Status : Answered

Chosen Option : 4

Q.27 Which of the following beams is an indeterminate beam?

Ans 1. One end hinge and other end roller beam

2. Continuous beam

3. Simply supported beam

4. Cantilever beam

Question ID : 630680197261

Status : Answered

Chosen Option : 2

Q.28 Which of the following is independent of the properties of water with respect to permeability?

Ans 1. Coefficient of hydraulic conductivity

2. Coefficient of absolute permeability

3. Coefficient of percolation

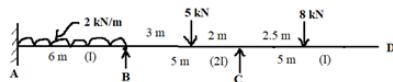
4. Coefficient of permeability

Question ID : 630680197247

Status : Marked For Review

Chosen Option : 1

Q.29 The distribution factor of BC and CB of the continuous beam shown in the given figure are _____, respectively.



Ans

- 1. $DF_{BC} = 0.64$ and $DF_{CB} = 1$
- 2. $DF_{BC} = 0.64$ and $DF_{CB} = 0.36$
- 3. $DF_{BC} = 0.56$ and $DF_{CB} = 0.44$
- 4. $DF_{BC} = 0.5$ and $DF_{CB} = 0.5$

Question ID : 630680197264
 Status : **Marked For Review**
 Chosen Option : 2

Q.30 A 90° triangular weir is used to measure the discharge (Q) of a canal with the head of water H. The theoretical discharge is computed by:

Ans

- 1. $Q_{th} = \frac{8}{15} \tan \theta \sqrt{2gH}$
- 2. $Q_{th} = \frac{8}{15} \tan \frac{\theta}{2} \sqrt{2gH^{\frac{5}{2}}}$
- 3. $Q_{th} = \frac{8}{15} \tan \frac{\theta}{2} H^{\frac{5}{2}} \sqrt{2g}$
- 4. $Q_{th} = \frac{8}{15} \tan \theta H^{\frac{5}{2}} \sqrt{2g}$

Question ID : 630680197258
 Status : **Answered**
 Chosen Option : 4

Q.31 What should be the minimum sample size for the flakiness index test for aggregate?

Ans

- 1. 50 pieces
- 2. 200 pieces
- 3. 300 pieces
- 4. 100 pieces

Question ID : 630680197216
 Status : **Marked For Review**
 Chosen Option : 2

Q.32 Which of the following rock types belongs to the igneous rock group?

Ans 1. Shale
 2. Marble
 3. Rhyolite
 4. Schist

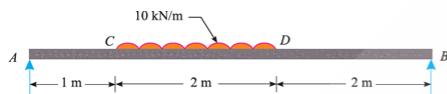
Question ID : 630680197210
Status : Marked For Review
Chosen Option : 4

Q.33 The maximum monthly demand of water per head is equal to:

Ans 1. $1.28 \times (\text{Annual average monthly demand of water})$
 2. $2.7 \times (\text{Annual average hourly demand of water per head})$
 3. Annual average monthly demand of water
 4. $1.8 \times (\text{Annual average daily demand of water})$

Question ID : 630680197282
Status : Answered
Chosen Option : 4

Q.34 A simply supported beam carrying a uniformly distributed load of 10 kN/m is shown in the given figure. Determine the distance at which shear force is equal to zero from point C.



Ans 1. 1.5 m
 2. 1.0 m
 3. 1.2 m
 4. 1.7 m

Question ID : 630680197230
Status : Answered
Chosen Option : 3

Q.35 According to IS : 456-2000, the maximum permissible limit of chlorides (as Cl) present in the water that is used for mixing concrete with embedded steel is:

Ans 1. 3000 mg/l
 2. 500 mg/l
 3. 2000 mg/l
 4. 200 mg/l

Question ID : 630680197236
Status : Answered
Chosen Option : 3

Q.36 Which of the following conditions of soils, the Vane shear test conducted in the laboratory to determine the shear strength is applicable?

Ans 1. Undrained shear strength of soft clays

2. Drained shear strength of soft clays

3. Drained shear strength of stiff clays

4. Undrained shear strength of problematic soils

Question ID : 630680197250

Status : Answered

Chosen Option : 1

Q.37 Identify whether the following statements related to concrete mix are correct or incorrect.

Statement 1: Nominal mix concrete may be used for concrete of M 25 or higher grade.

Statement 2: The mix shall be designed to produce the grade of concrete having the required workability and a characteristic strength.

Ans 1. Statement 1 is incorrect but Statement 2 is correct

2. Both statements are incorrect

3. Statement 1 is correct but Statement 2 is incorrect

4. Both statements are correct

Question ID : 630680197242

Status : Answered

Chosen Option : 1

Q.38 What is the dimension of dynamic viscosity of fluid?

Ans 1. $ML^{-1}T^{-2}$

2. $M^{-1}L^{-1}T^{-1}$

3. MLT^{-2}

4. $ML^{-1}T^{-1}$

Question ID : 630680197253

Status : Answered

Chosen Option : 4

Q.39 The magnetic bearing of a line is $135^\circ 30'$. What is the true bearing if the declination is $5^\circ 15' W$?

Ans 1. $140^\circ 45'$

2. $130^\circ 15'$

3. $115^\circ 45'$

4. $120^\circ 15'$

Question ID : 630680197219

Status : Answered

Chosen Option : 2

Q.40 For discharge Q , the specific speed of a pump is N_s . For half discharge with the same head, the specific speed will be:

Ans 1. $N_s\sqrt{2}$

2. $\frac{N_s}{\sqrt{2}}$

3. $2N_s$

4. $\frac{N_s}{2}$

Question ID : 630680197260

Status : Answered

Chosen Option : 1

Q.41 According to IS : 456-2000, for a cantilever beam, the clear distance from the free end of the cantilever to the lateral restraint shall not exceed _____ (where d is the effective depth of the beam and b is the breadth of the compression face midway between the lateral restraints).

Ans 1. $60 b$ or $\frac{250b^2}{d}$ whichever is less

2. $25 d$ or $\frac{100d^2}{b}$ whichever is less

3. $25 b$ or $\frac{100b^2}{d}$ whichever is less

4. $60 d$ or $\frac{250d^2}{b}$ whichever is less

Question ID : 630680197268

Status : Answered

Chosen Option : 3

Q.42 Which of the following options related to bituminous materials manufacturing is correct?

1. Bitumen is a crystalline solid material derived from petroleum, by natural or refinery process.
2. Tar is produced by the destructive distillation of organic materials such as coal, oil, lignite and wool.

Ans 1. Statement 1 is correct but Statement 2 is incorrect

2. Statement 1 is incorrect but Statement 2 is correct

3. Both statements are correct

4. Both statements are incorrect

Question ID : 630680197214

Status : Answered

Chosen Option : 2

Q.43 The maximum hydraulic efficiency for a Pelton turbine with exit angle ϕ is given by:

Ans

1. $\left(1 + \frac{\cos\phi}{2}\right)$

2. $\left(\frac{1 + \cos\phi}{2}\right)$

3. $\left(\frac{1 - \cos\phi}{2}\right)$

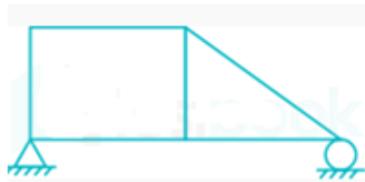
4. $\left(1 - \frac{\cos\phi}{2}\right)$

Question ID : 630680197259

Status : Answered

Chosen Option : 2

Q.44 Identify the type of truss shown in the given figure.



Ans 1. Perfect truss

2. Deficient truss

3. Space truss

4. Redundant truss

Question ID : 630680197262

Status : Answered

Chosen Option : 4

Q.45 When concrete surfaces are exposed to alternate wetting and drying, the exposure condition is called _____.

Ans 1. severe

2. moderate

3. extreme

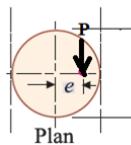
4. mild

Question ID : 630680197240

Status : Answered

Chosen Option : 1

Q.46 A circular compression specimen having a cross-sectional area of 100 mm^2 and section modulus of 200 mm^3 carries a load of 100 kN at an eccentricity of 10 mm , as shown in the given figure. What is the maximum stress induced in the section?



Ans

- 1. 4000 N/mm^2
- 2. 5000 N/mm^2
- 3. 6000 N/mm^2
- 4. 7000 N/mm^2

Question ID : 630680197267

Status : Answered

Chosen Option : 3

Q.47 Match the following possible failure modes of an axially loaded column with their correct occurrence.

Failure modes of column	Occurrence
1. Local buckling	A. Occurs by excessive deflection in the plane of the weaker principal axis
2. Squashing	B. Occurs by buckling of one or more individual plate elements
3. Overall flexural buckling	C. Occurs by twisting about the shear centre in the longitudinal axis
4. Flexural-torsional buckling	D. Occurs when the length is relatively small (stocky column)

Ans

- 1. 1-B; 2-D; 3-A; 4-C
- 2. 1-B; 2-C; 3-A; 4-D
- 3. 1-B; 2-A; 3-D; 4-C
- 4. 1-C; 2-D; 3-A; 4-B

Question ID : 630680197279

Status : Marked For Review

Chosen Option : 1

Q.48 Match the following sewer components with their functions.

Types of sewer	Functions
1. Catch pits	A. Used to check the obstruction in the sewer
2. Flushing tanks	B. Used to collect stormwater from the roadside
3. Lamp holes	C. Used to collect grit, sand and debris
4. Gullies	D. Used to clean the sewer by removing blockages

Ans

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

Question ID : 630680197287

Status : Answered

Chosen Option : 4

Q.49 Which of the following statements related to Tacheometric survey is correct?

1. Reduction diagrams are used for measuring corrections for horizontal and vertical distances directly.
2. Tacheometric tables are prepared for 1 m staff intercept when staff is held vertically and constants are 100 and 0.

Ans 1. Statement 2 is correct

2. Neither of the statements is correct

3. Statement 1 is correct

4. Both statements are correct

Question ID : 630680197226

Status : Not Answered

Chosen Option : --

Q.50 Which of the following conditions should satisfy for the formation of supercritical flow in an open channel?

Ans 1.

When the depth of flow in a channel is greater than critical depth and Froud's number is less than 1

2.

When the depth of flow in a channel is greater than critical depth and Froud's number is greater than 1

3.

When the depth of flow in a channel is less than critical depth and Froud's number is greater than 1

4.

When the depth of flow in a channel is equal to critical depth and Froud's number is equal to zero

Question ID : 630680197257

Status : Answered

Chosen Option : 3

Q.51 According to IS : 4111-1986, the spacing of manholes above _____ may be allowed on straight runs for sewers of diameter above 900 to 1500 mm.

Ans 1. 200 to 300 m

2. 30 to 100 m

3. 90 to 150 m

4. 150 to 200 m

Question ID : 630680197284

Status : Not Answered

Chosen Option : --

Q.52 According to IS : 456-2000, what is the required slump value for placing the concrete in lightly reinforced sections in slabs, beams and column?

Ans 1. 100-150 mm

2. 10-25 mm

3. 75-100 mm

4. 25-75 mm

Question ID : 630680197238

Status : Marked For Review

Chosen Option : 3

Q.53 When the available length is less than the required length of a tension member, _____ are provided.

Ans 1. lug angles
 2. splices
 3. column bases
 4. gusset plates

Question ID : 630680197275

Status : Answered

Chosen Option : 4

Q.54 Which of the following is NOT an objective of varnishing a surface?

Ans 1. To render brilliancy to the painted surface
 2. To protect the painted surface from atmospheric actions
 3. To enhance the aesthetic appearance of a painted metal
 4. To brighten the appearance of the grain in wood

Question ID : 630680197215

Status : Marked For Review

Chosen Option : 1

Q.55 Cement that has _____ is the most suitable for achieving higher ultimate strength in a given application.

Ans 1. very little gypsum
 2. a high C_2S content
 3. a high C_3S content
 4. a high C_3A content

Question ID : 630680197235

Status : Answered

Chosen Option : 2

Q.56 Which of the following statements is correct in the case of a singly reinforced concrete beam?

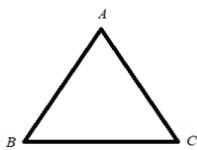
Ans 1. Elastic moduli for concrete and steel have different values within the limits of deformation of the beam.
 2. Steel possesses initial stresses when embedded in concrete.
 3. Plane sections transverse to the centre line of the beam before bending, remain plane after bending.
 4. Compression is borne by the concrete.

Question ID : 630680197270

Status : Answered

Chosen Option : 3

Q.57 An equilateral triangular section ABC has a base width of 80 mm and height of 60 mm. The moment of inertia about the base BC is:



Ans

- 1. $360 \times 10^3 \text{ mm}^4$
- 2. $650 \times 10^3 \text{ mm}^4$
- 3. $1440 \times 10^3 \text{ mm}^4$
- 4. $1260 \times 10^3 \text{ mm}^4$

Question ID : 630680197229

Status : Answered

Chosen Option : 3

Q.58 The ratio of lateral strain to longitudinal strain is called _____.

Ans

- 1. Young's modulus of elasticity
- 2. Bulk modulus
- 3. Poisson's ratio
- 4. Shear modulus

Question ID : 630680197227

Status : Answered

Chosen Option : 3

Q.59 A beam of the triangular section having a base width of 100 mm and height of 150 mm is subjected to a shear force of 15 kN. Find the value of the maximum shear stress.

Ans

- 1. 4 MPa
- 2. 5 MPa
- 3. 2 MPa
- 4. 3 MPa

Question ID : 630680197232

Status : Answered

Chosen Option : 4

Q.60 Which of the following conditions is valid in the case of flow through parallel pipes?

Ans 1.

The velocity of flow in the main line is equal to the sum of the velocities in each of the parallel pipes.

2.

The rate of discharge in the main line is not equal to the sum of the discharges in each of the parallel pipes.

3. The loss of head in each parallel pipe is different.

4.

The rate of discharge in the main line is equal to the sum of the discharges in each of the parallel pipes.

Question ID : 630680197256

Status : Answered

Chosen Option : 4

Q.61 The theodolite in which the telescope can be revolved through a complete revolution in a vertical plane is called _____.

Ans 1. transit theodolite

2. non-transit theodolite

3. dumpy level

4. titling theodolite

Question ID : 630680197225

Status : Marked For Review

Chosen Option : 2

Q.62 Which of the following theorems states that if a beam has 'n' supports, the end being fixed, than the same number of equations required to determine the support moments may be obtained from the consecutive pairs of spans?

Ans 1. Strain energy theorem

2. Moment area theorem

3. Clapeyron's theorem

4. Mohr's theorem

Question ID : 630680197263

Status : Answered

Chosen Option : 3

Q.63 What is the indent of 'frog' in a standard modular burnt clay brick?

Ans 1. 20 mm to 30 mm

2. 5 mm to 10 mm

3. 10 mm to 20 mm

4. 30 mm to 40 mm

Question ID : 630680197209

Status : Marked For Review

Chosen Option : 3

Q.64 A soil has a liquid limit of 25% and a flow index of 12%. If the plastic limit is 15%, determine the toughness index.

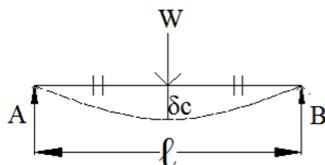
Ans 1. 75.55%
 2. 78.55%
 3. 83.33%
 4. 86.66%

Question ID : 630680197251

Status : Answered

Chosen Option : 3

Q.65 A simply supported beam of span l carries a point load W at the centre (as shown in the given figure) and has a flexural rigidity of EI . What are the maximum slope and deflection of the beam?



Ans 1.

$$\text{max. slope} = \frac{Wl^2}{16EI} \text{ and max. deflection at centre} = \frac{Wl^3}{48EI}$$

2.

$$\text{max. slope} = \frac{Wl^4}{16EI} \text{ and max. deflection at centre} = \frac{Wl^2}{16EI}$$

3.

$$\text{max. slope} = \frac{Wl^2}{6EI} \text{ and max. deflection at centre} = \frac{Wl^3}{8EI}$$

4.

$$\text{max. slope} = \frac{Wl^3}{48EI} \text{ and max. deflection at centre} = \frac{Wl^2}{16EI}$$

Question ID : 630680197266

Status : Answered

Chosen Option : 1

Q.66 In reinforced concrete members, torsion generally occurs in combination with:

Ans 1. diagonal shear and shear bond
 2. flexure and transverse shear
 3. punching shear and shear compression
 4. shear bond and shear compression

Question ID : 630680197273

Status : Marked For Review

Chosen Option : 1

Q.67 Which type of formwork requires a maximum stripping time of 14 days?

Ans

- 1. Soffit formwork to slabs
- 2. Props to beams spanning over 6 m
- 3. Soffit formwork to beams
- 4. Props to slabs spanning over 4.5 m

Question ID : 630680197243

Status : Answered

Chosen Option : 4

Q.68 Which of the following are the components of water treatment systems? Select only the sewer appurtenances.

- 1. Manholes
- 2. Flushing tanks
- 3. Imhoff tank
- 4. Aeration tank
- 5. Storm regulators

Ans

- 1. 3, 4 and 5
- 2. 1, 2 and 5
- 3. 1, 3 and 4
- 4. 2, 3 and 4

Question ID : 630680197285

Status : Answered

Chosen Option : 2

Q.69 To which type of plane table method does the given problem belong?

Establishing a new station point using two-point at a place in order to locate missing details

Ans

- 1. Radiation
- 2. Traversing
- 3. Intersection
- 4. Resection

Question ID : 630680197224

Status : Answered

Chosen Option : 3

Q.70 In which type of shear failure does the failure surface NOT extend up to the ground surface when a strip footing rests on loose sand or soft clay?

Ans 1. Meyerhof's failure
 2. Punching shear failure
 3. General shear failure
 4. Local shear failure

Question ID : 630680197252

Status : Answered

Chosen Option : 4

Q.71 Which of the following statements related to hydration of cement is/are correct?

1. Hydration of cement begins as soon as water comes in contact with the cement.
2. Hydration of Ordinary Portland Cement is an exothermic reaction.

Ans 1. Both statements are incorrect
 2. Statement 1 is incorrect but Statement 2 is correct
 3. Both statements are correct
 4. Statement 1 is correct but Statement 2 is incorrect

Question ID : 630680197237

Status : Marked For Review

Chosen Option : 3

Q.72 In which type of failure of steel tension member, the failure of the member occurs along a path involving tension on one plane and shear on a perpendicular plane along the fasteners?

Ans 1. Block shear failure
 2. Local web buckling
 3. Gross section yielding
 4. Net section rupture

Question ID : 630680197276

Status : Not Answered

Chosen Option : --

Q.73 Which of the following statements related to manufacturing of the given materials is correct?

- 1) Asphalt is manufactured by fractional distillation of crude petroleum.
- 2) Tar is manufactured by fractional distillation of organic materials.

Ans

- 1. Statement 1 is correct but Statement 2 is incorrect
- 2. Both statements are incorrect
- 3. Statement 1 is incorrect but Statement 2 is correct
- 4. Both statements are correct

Question ID : 630680197217

Status : Answered

Chosen Option : 2

Q.74 Which of the following types of pipes is NOT commonly used in water supply schemes?

Ans

- 1. Wrought iron pipe
- 2. Steel cylindrical reinforced concrete pipes
- 3. Steel pipe
- 4. Cement concrete pipes

Question ID : 630680197283

Status : Answered

Chosen Option : 1

Q.75 For the design of the steel members, which of the following is NOT a correct combination of Load as per IS 800:2007?

Ans

- 1. Dead load + wind or earthquake load
- 2. Dead load + imposed load + wind + earthquake load
- 3. Dead load + imposed load
- 4. Dead load+ erection load.

Question ID : 630680197271

Status : Answered

Chosen Option : 2

Q.76 The degree of saturation of a soil sample is defined as:

Ans

- 1. the ratio of the volume of voids to the volume of solids in a given soil mass
- 2. the ratio of the porosity to the volume of voids in a given soil sample
- 3. the ratio of the volume of voids to the total volume in a soil mass
- 4. the ratio of the volume of water present in a given soil mass to the total volume of voids in it

Question ID : 630680197244

Status : Answered

Chosen Option : 4

Q.77 A uniform rod of cross-sectional area A and length L is subjected to an axial pull P . What is the change in length of the rod? (Assume that Young's modulus of elasticity E remains the same throughout the length.)

Ans

1. $\frac{PE}{AL}$

2. $\frac{PA}{LE}$

3. $\frac{PL}{AE}$

4. $\frac{P}{AEL}$

Question ID : 630680197228

Status : Answered

Chosen Option : 3

Q.78 If an upgrade of 2% is followed by a downgrade of 2%, and the rate of change of grade is 0.4% per 100 m, the length of the vertical curve will be:

Ans

1. 1000 m

2. 200 m

3. 400 m

4. 600 m

Question ID : 630680197222

Status : Answered

Chosen Option : 1

Q.79 In the Indian Soil classification system, coarse-grained soils comprise:

Ans

1. Boulder, cobble, gravel and silt

2. silt, cobble, sand and gravel

3. cobble, silt, clay and sand

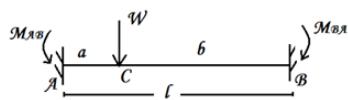
4. boulder, cobble, gravel and sand

Question ID : 630680197246

Status : Answered

Chosen Option : 4

Q.80 The fixed beam shown in the given figure carries a point load. What are fixed end moments M_{AB} and M_{BA} ?



Ans

X 1. $M_{AB} = \frac{Wab^2}{l}$ and $M_{BA} = \frac{Wba^2}{l}$

X 2. $M_{AB} = \frac{Wab^3}{l^2}$ and $M_{BA} = \frac{Wba^3}{l^2}$

✓ 3. $M_{AB} = \frac{Wab^2}{l^2}$ and $M_{BA} = \frac{Wba^2}{l^2}$

X 4. $M_{AB} = \frac{Wab^2}{2l^2}$ and $M_{BA} = \frac{Wba^2}{2l^2}$

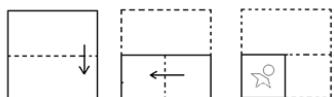
Question ID : 630680197265

Status : Answered

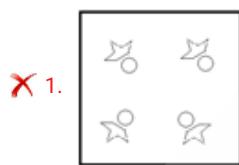
Chosen Option : 3

Section : Reasoning

Q.1 The sequence of folding a piece of paper and the manner in which the folded paper is cut are shown in the following figures. How would this paper look when unfolded?



Ans



Question ID : 630680197295

Status : Answered

Chosen Option : 3

Q.2 In a certain code language, 'DEMAND' is coded as 'DFNBOD' and 'COTTON' is coded as 'CPUUPN'. How will 'DEALER' be coded in that language?

Ans 1. DFBNFR
 2. DFBMFR
 3. EFBMFS
 4. DFBMGR

Question ID : 630680197291

Status : Answered

Chosen Option : 2

Q.3 If

'A * B' means 'A is the wife of B',
'A @ B' means 'A is the mother of B',
'A = B' means 'B is the father-in-law of A',
'A & B' means 'A is the mother of B's mother',
'A # B' means 'A is the sister of B' and
'A ^ B' means 'A is the brother of B's father',
then how is K related to J in the given expression?
 $K ^ I \# H * G = J$

Ans 1. Brother
 2. Sister
 3. Son
 4. Husband

Question ID : 630680197292

Status : Answered

Chosen Option : 1

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

$$26 * 12 * 12 * 3 * 4 * 2 * 2$$

Ans 1. $-$, $+$, \times , $=$, \div , $+$
 2. $+$, $-$, \div , \times , $=$, $+$
 3. $-$, $-$, \div , $=$, \times , $+$
 4. $-$, $+$, \div , \times , $=$, $+$

Question ID : 630680197298

Status : Answered

Chosen Option : 3

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

$$135, 54, 27, 18, ?, 14$$

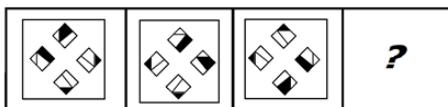
Ans 1. 14
 2. 16
 3. 15
 4. 17

Question ID : 630680197296

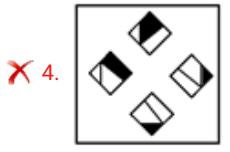
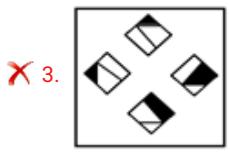
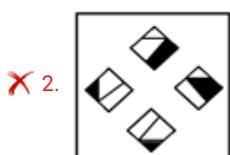
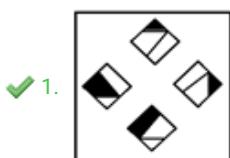
Status : Answered

Chosen Option : 3

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



Ans



Question ID : 630680197294

Status : Answered

Chosen Option : 1

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.)

ASTROLOGY : PLANETS :: PHYSIOLOGY : ?

Ans ✗ 1. BONE

✓ 2. BODY

✗ 3. MAN

✗ 4. SKULL

Question ID : 630680197293

Status : Answered

Chosen Option : 1

Q.8 If '+' means 'division', '-' means 'addition', 'x' means 'subtraction' and '÷' means 'multiplication', what will be the value of the following expression?

$$[(12 \times 7) - (4 \div 4)] + (3 - 4) \div 3$$

Ans 1. 6

2. 1

3. 12

4. 9

Question ID : 630680197297

Status : Answered

Chosen Option : 4

Q.9 Five friends Sajit, Rohan, Bikshu, Tomar and Madhu are sitting on a bench in a playground and facing north (but not necessarily in the same order). Sajit is to the immediate left of Rohan and to the immediate right of Bikshu. Madhu is somewhere to the right of Rohan. Tomar is exactly between Rohan and Madhu. Who is sitting at the rightmost end?

Ans 1. Madhu

2. Rohan

3. Sajit

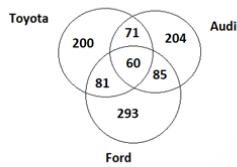
4. Tomar

Question ID : 630680197289

Status : Answered

Chosen Option : 1

Q.10 Study the given diagram carefully and answer the question that follows. The numbers in different sections indicate the numbers of people with different brands of cars.



What is the ratio of the people who have Audi but not Ford to the people who have both Audi and Ford to the people who have only Toyota?

Ans 1. 204 : 141 : 200

2. 275 : 145 : 200

3. 275 : 141 : 200

4. 204 : 145 : 200

Question ID : 630680197290

Status : Answered

Chosen Option : 2

Section : Quantitative Aptitude

Q.1 Three numbers are in the ratio 2:3:4. If their sum is 549, then their HCF is:

Ans 1. 47
 2. 59
 3. 73
 4. 61

Question ID : 630680197300

Status : Answered

Chosen Option : 4

Q.2 A retailer buys 60 pens at the marked price of 48 pens from a wholesaler. If he sells these pens by giving a discount of 5%, what is his profit per cent?

Ans 1. 17.50%
 2. 16.25%
 3. 19.25%
 4. 18.75%

Question ID : 630680197304

Status : Answered

Chosen Option : 4

Q.3 If 2640 cm^2 is the curved surface area of a cylinder of height 28 cm, then its volume is:

Ans 1. $20,100 \text{ cm}^3$
 2. $22,500 \text{ cm}^3$
 3. $21,200 \text{ cm}^3$
 4. $19,800 \text{ cm}^3$

Question ID : 630680197308

Status : Answered

Chosen Option : 4

Q.4 The length of a rectangle is thrice its breadth. If its length is decreased by 7 cm and breadth is increased by 7 cm, the area of the rectangle is increased by 147 cm^2 . Then the length of the initial rectangle is:

Ans 1. 42 cm
 2. 36 cm
 3. 39 cm
 4. 33 cm

Question ID : 630680197307

Status : Answered

Chosen Option : 1

Q.5 When the price of a product was decreased by 12%, the number sold increased by 25%. What was the effect on the total revenue?

Ans 1. 13%
 2. 15%
 3. 10%
 4. 12%

Question ID : 630680197303

Status : Answered

Chosen Option : 3

Q.6 If $11^{x-1} + 11^{x+1} = 14762$, then the value of x is:

Ans 1. 5
 2. 3
 3. 2
 4. 4

Question ID : 630680197299

Status : Answered

Chosen Option : 2

Q.7 Ramu and Somu can complete the work in 24 days and 36 days, respectively. They started doing the work but after 6 days Ramu had to leave and Somu alone completed the remaining work. The whole work was completed in how many days?

Ans 1. 31
 2. 27
 3. 21
 4. 29

Question ID : 630680197306

Status : Answered

Chosen Option : 2

Q.8 The average of the prime numbers between the numbers 10 and 50 is:

Ans 1. $28\frac{3}{11}$
 2. $27\frac{5}{11}$
 3. $26\frac{9}{11}$
 4. $29\frac{2}{11}$

Question ID : 630680197301

Status : Answered

Chosen Option : 1

Q.9 A car travels the first one-third of a certain distance at the speed of 40 km/h, the next one-third distance at the speed of 80 km/h and the last one-third distance at the speed of 100 km/h. The average speed of the car for the whole journey is:

Ans 1. $67\frac{11}{19}$ km/h

2. $63\frac{3}{19}$ km/h

3. $65\frac{9}{19}$ km/h

4. $64\frac{17}{19}$ km/h

Question ID : 630680197305

Status : Answered

Chosen Option : 2

Q.10 The average price of 12 books is ₹250 while the average price of 10 of these books is ₹215. Of the remaining two books, if the price of one book is 12.5% more than the price of the other, what is the price of each of these two books?

Ans 1. ₹400, ₹450

2. ₹240, ₹270

3. ₹300, ₹337

4. ₹320, ₹360

Question ID : 630680197302

Status : Answered

Chosen Option : 1

Section : General Awareness

Q.1 According to the Indian State of Forest Report, 2021, what is the total forest and tree cover of the geographical area of the country?

Ans 1. 22.65%

2. 24.62%

3. 21.71%

4. 25.45%

Question ID : 630680197314

Status : Not Answered

Chosen Option : --

Q.2 According to the Union Budget 2022-23, what is the estimated Effective Revenue Deficit for the financial year 2022-23?

Ans 1. 6.4%

2. 4.5%

3. 2.6%

4. 3.8%

Question ID : 630680197313

Status : Not Answered

Chosen Option : --

Q.3 The Prarthana Samaj was established in:

Ans 1. 1875 at Bombay
 2. 1867 at Bombay
 3. 1878 at Calcutta
 4. 1866 at Calcutta

Question ID : 630680197310

Status : Not Answered

Chosen Option : --

Q.4 Nokia has partnered with the Indian Institute of Science to set up the Nokia Centre of Excellence in networked robotics at IISc ____.

Ans 1. Delhi
 2. Pune
 3. Mumbai
 4. Bengaluru

Question ID : 630680197309

Status : Answered

Chosen Option : 4

Q.5 One of the best-known artefacts from the Indus Valley is the approximately four-inch-high, copper figure of a dancing girl which was found in:

Ans 1. Mohenjo-Daro
 2. Lothal
 3. Kalibangan
 4. Rakhigarhi

Question ID : 630680197311

Status : Answered

Chosen Option : 1

Q.6 The short run marginal cost (SMC) is defined as the change in total cost per unit of:

Ans 1. time
 2. output
 3. change in output
 4. change in input

Question ID : 630680197312

Status : Not Answered

Chosen Option : --

Q.7 Which of the following Articles of the Indian Constitution is related to the right to work, to education and to public assistance in certain cases?

Ans 1. Article 72

2. Article 51

3. Article 32

4. Article 41

Question ID : 630680197316

Status : Not Answered

Chosen Option : --

Q.8 Who became the first player in history to win 80 matches in all four Grand Slams?

Ans 1. Roger Federer

2. Daniil Medvedev

3. Rafael Nadal

4. Novak Djokovic

Question ID : 630680197318

Status : Answered

Chosen Option : 4

Q.9 According to the Indian Constitution, how many members are nominated by the President?

Ans 1. 12

2. 10

3. 15

4. 20

Question ID : 630680197317

Status : Marked For Review

Chosen Option : 1

Q.10 Enlarged thyroid known as _____ is the most common manifestation of iodine deficiency in adults.

Ans 1. cretinism

2. goitre

3. Graves' Disease

4. Hashimoto's Thyroiditis

Question ID : 630680197315

Status : Answered

Chosen Option : 2

Section : English Language

Q.1 Select the most appropriate option to substitute the underlined word in the given idiom. If there is no need to substitute it, select 'No substitution required'.

All bark and no fight

Ans 1. pride
 2. No substitution required
 3. fire
 4. bite

Question ID : 630680197323

Status : Answered

Chosen Option : 4

Q.2 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. The king brought fresh water and gave it to him.
B. The man closed his eyes and lay quietly.
C. The man felt better and asked for something to drink.
D. Then, with the hermit's help he carried the wounded man into the hut and laid him on the bed.

Ans 1. ACDB
 2. CBDA
 3. BCAD
 4. CADB

Question ID : 630680197325

Status : Answered

Chosen Option : 4

Q.3 Select the most appropriate option to fill in the blank.

What do you normally have for _____ breakfast?

Ans 1. an
 2. no article
 3. the
 4. a

Question ID : 630680197319

Status : Answered

Chosen Option : 2

Q.4 Select the most appropriate meaning of the given idiom.

At random

Ans 1. At a distance
 2. In total confusion
 3. At the last moment
 4. In a hap-hazard manner

Question ID : 630680197324

Status : Answered

Chosen Option : 4

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

It continued to rain ____ the night.

Ans 1. by
 2. since
 3. within
 4. during

Question ID : 630680197320

Status : Answered

Chosen Option : 4

Q.6 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.

We now have new evidence to corroborate the defendant's story.

Ans 1. the defendant's story
 2. We now have
 3. new evidence to corroborate
 4. No error

Question ID : 630680197322

Status : Marked For Review

Chosen Option : 3

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

Suspended

His surgery was ____ due to the rise in his sugar level.

Ans 1. ended
 2. changed
 3. postponed
 4. continued

Question ID : 630680197321

Status : Answered

Chosen Option : 3



Comprehension:

Read the given passage and answer the questions that follow.

They say that the colour of revolution is red. Not always. Sometimes, it's blue. It was the summer of 1859 in Bengal when thousands of ryots (peasants) refused to grow indigo for the European planters (owners of land and indigo factories). It was a show of rage and undying resolve. It became one of the most remarkable peasant movements of Indian history. It came to be called the Neel Bidroha or the Indigo Revolt.

Indigo was being cultivated in Bengal since the end of the 18th century. It was practiced mainly in two forms, the Nij-abad and the Ryoti. In the Nij or 'own' system, the planter produced indigo on lands that he directly controlled. In the Ryoti cultivation, the ryots cultivated indigo on their own lands as part of a contract with the planters. Ryoti was the predominant form of indigo cultivation in Bengal. The ryots sowed indigo under a contract system. It extended to a period of either one, three to five or ten years. At the inception of the contract, the planter made an advance payment to the ryot to meet the expenses of cultivation. In return, the ryot agreed to cultivate indigo on his land. The system of indigo cultivation was inherently exploitative. Emerging in 1859 in the Nadia district, the Bidroha spread to in different districts of Bengal in the 1860s. The peasants attacked indigo factories with spears and swords. Planters who demanded rent were beaten. Even women participated by fighting with pots and pans. It was especially powerful in the Pabna district where the ryots vehemently refused to sow indigo.

SubQuestion No : 8

Q.8 What is the main theme of the passage?

Ans 1. Indigo revolt in Bengal

2. Ryoti system in Indigo cultivation

3. Exploitation of Indigo farmers

4. Indigo plantation in Bengal

Question ID : 630680197327

Status : Answered

Chosen Option : 1



Comprehension:

Read the given passage and answer the questions that follow.

They say that the colour of revolution is red. Not always. Sometimes, it's blue. It was the summer of 1859 in Bengal when thousands of ryots (peasants) refused to grow indigo for the European planters (owners of land and indigo factories). It was a show of rage and undying resolve. It became one of the most remarkable peasant movements of Indian history. It came to be called the Neel Bidroha or the Indigo Revolt.

Indigo was being cultivated in Bengal since the end of the 18th century. It was practiced mainly in two forms, the Nij-abad and the Ryoti. In the Nij or 'own' system, the planter produced indigo on lands that he directly controlled. In the Ryoti cultivation, the ryots cultivated indigo on their own lands as part of a contract with the planters. Ryoti was the predominant form of indigo cultivation in Bengal. The ryots sowed indigo under a contract system. It extended to a period of either one, three to five or ten years. At the inception of the contract, the planter made an advance payment to the ryot to meet the expenses of cultivation. In return, the ryot agreed to cultivate indigo on his land. The system of indigo cultivation was inherently exploitative. Emerging in 1859 in the Nadia district, the Bidroha spread to in different districts of Bengal in the 1860s. The peasants attacked indigo factories with spears and swords. Planters who demanded rent were beaten. Even women participated by fighting with pots and pans. It was especially powerful in the Pabna district where the ryots vehemently refused to sow indigo.

SubQuestion No : 9

Q.9 Read the given sentences.

- A. The system of Ryoti in indigo plantation was such that it exploited the peasants.
- B. The peasants revolted against the Indigo planters and refused to sow indigo.

Select the correct option about these statements.

Ans

- 1. Statement A is false but statement B is true
- 2. Both statements A and B are true but A does not explain the reason for B.
- 3. Statement A is true but statement B is false
- 4. Both statements A and B are true and A explains the reason for B.

Question ID : 630680197328

Status : Answered

Chosen Option : 4



Comprehension:

Read the given passage and answer the questions that follow.

They say that the colour of revolution is red. Not always. Sometimes, it's blue. It was the summer of 1859 in Bengal when thousands of ryots (peasants) refused to grow indigo for the European planters (owners of land and indigo factories). It was a show of rage and undying resolve. It became one of the most remarkable peasant movements of Indian history. It came to be called the Neel Bidroha or the Indigo Revolt.

Indigo was being cultivated in Bengal since the end of the 18th century. It was practiced mainly in two forms, the Nij-abad and the Ryoti. In the Nij or 'own' system, the planter produced indigo on lands that he directly controlled. In the Ryoti cultivation, the ryots cultivated indigo on their own lands as part of a contract with the planters. Ryoti was the predominant form of indigo cultivation in Bengal. The ryots sowed indigo under a contract system. It extended to a period of either one, three to five or ten years. At the inception of the contract, the planter made an advance payment to the ryot to meet the expenses of cultivation. In return, the ryot agreed to cultivate indigo on his land. The system of indigo cultivation was inherently exploitative. Emerging in 1859 in the Nadia district, the Bidroha spread to in different districts of Bengal in the 1860s. The peasants attacked indigo factories with spears and swords. Planters who demanded rent were beaten. Even women participated by fighting with pots and pans. It was especially powerful in the Pabna district where the ryots vehemently refused to sow indigo.

SubQuestion No : 10

Q.10 'Ryoti was the predominant form of indigo cultivation in Bengal'. The word 'predominant' means:

Ans 1. conventional
 2. normal
 3. cheap
 4. main

Question ID : 630680197329

Status : **Answered**

Chosen Option : 4

