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Participant ID	_		
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Test Date	03/04/2023		
Test Time	4:30 PM - 6:30 PM		
Subject	Junior Engineer (Electrical or Mechanical)		

Section	. Dame	· O	 - / []	A

Q.1 A straight repulsion type motor has _____ starting torque and _____ starting current.

Ans

X 1. low; negligible

X 2. high; negligible

X 3. low; high

Question ID: 630680198098

Status : Not Attempted and Marked For Review

Chosen Option: --

Q.2 With reference to alternators, state true/false for the following statements.

Statement 1: Rotating field system eliminates the problem of sparking at the slip-rings.

Statement 2: Most alternators have stator armature and rotor as field.

Ans X 1. Statement 1 is false; Statement 2 is true

X 2. Statement 1 is false; Statement 2 is false

X 3. Statement 1 is true; Statement 2 is false

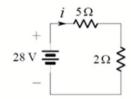
4. Statement 1 is true; Statement 2 is true

Question ID: 630680198100

Status: Answered



Q.3 Find the voltage drop across a 5- Ω resistor in the following circuit.



Ans X 1. 8 V

X 2. 16 V

X 3. 24 V

Question ID : 630680198068

Status : Answered

Chosen Option: 4

Q.4 The relationship between the flux density and field intensity of a magnetic material is called the _____.

Ans

X 2. polarization curve

X 3. saturation curve

X 4. hysteresis curve

Question ID: 630680198079

Status: Answered

Chosen Option: 4

Q.5 In a transmission line, the receiving end power is 200 kW. If the transmission efficiency is 80%, find the line losses.

Ans

X 1. 20 W

× 2. 40 W

X 3. 60 W

Question ID : 630680198088

Status: Answered

Chosen Option: 4

Q.6 What will be the potential energy of a block having mass of 1 kg at a height of 5 m from the ground?

Ans

X 1. 94 J

√ 2. 49 J

X 3. 98 J

X 4. 89 J

Question ID: 630680198094

Status: Answered





Q.7 Which method of finding voltage regulation of alternator is known as the E.M.F. method?

Ans

- Zero-power factor method
- ✓ 2. Synchronous impedance method
- ★ 3. Ampere-turn method
- X 4. Potier method

Question ID: 630680198099

Status : Not Attempted and Marked For Review

Chosen Option: --

Q.8 Which of the following types of support is the most suitable for high voltage long distance overhead transmission lines?

Ans

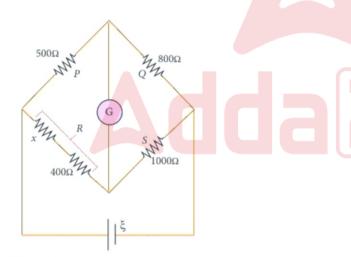
- ✓ 1. Steel towers
- × 2. RCC poles
- X 3. Steel poles
- X 4. Wooden poles

Question ID: 630680198090

Status: Answered

Chosen Option: 1

Find the voltage 'x' in the following network when the bridge is balanced.



Ans X 1. 825 Ω

× 2. 425 Ω

√ 3. 225 Ω

× 4. 625 Ω

Question ID: 630680198072

Status : Not Attempted and Marked For Review





Q.10 In overhead transmission lines, the annual cost of energy wasted in the conductor is:

- X 1. independent of the resistance of the conductor
- × 2. inversely proportional to the resistance of the conductor

X 3.

directly proportional to the area of cross section of the conductor

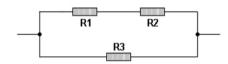
inversely proportional to the area of cross section of the conductor

Question ID: 630680198087

Status: Answered

Chosen Option: 3

Q.11 Find the total resistance for following circuit, if R1 = R2 = 5 Ω and R3 = 40 Ω .



Ans × 1. 10 Ω

Χ 2. 50 Ω

√ 3. 8 Ω

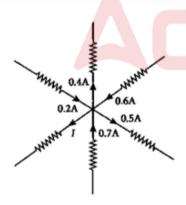
× 4. 5 Ω

Question ID: 630680198071

Status: Answered

Chosen Option: 3

Q.12 Find the current 'I' in following circuit.



Ans

√ 1. 0.6 A

× 2. 0.4 A

X 3. 0.2 A

× 4. 0.8 A

Question ID: 630680198073

Status: Answered





Q.13 In a synchronous generator, the coil span factor is unity. What will be the angle of short pitch?

Ans

X 1. 60°

X 2. 30°

X 3. 90°

√ 4. 0°

Question ID: 630680198101 Status: Answered

Chosen Option : 4

Q.14 The area of the cross section of a wire becomes half when the wire is stretched to double its length. How is the resistance of the wire affected in the new condition?

Ans

✓ 1. Resistance will be four times

X 2. Resistance will be doubled

X 3. Resistance will remain the same

X 4. Resistance will be halved

Question ID : 630680198070

Status: Answered

Chosen Option: 1

Q.15 Which parameter in a magnetic circuit is measured in AT/Wb?

Ans

√ 1. Reluctance

× 2. Permeance

★ 3. Magnetomotive force

X 4. Flux density

Question ID: 630680198077

Status: Answered

Chosen Option: 1

Q.16 Two metres X and Y require 30 mA and 60 mA, respectively, for full scale deflection. Which of the following statements is correct?

Ans

X 1. Y is more sensitive than X.

✓ 2. X is more sensitive than Y.

X 3. Both are equally sensitive.

A. Data is not sufficient to decide the sensitivity.

Question ID: 630680198084

atus : Not Attempted and

Marked For Review





Q.17 An RLC series circuit has $R = 2 \Omega$ and $C = 20 \mu F$ and the resonance frequency of 1000 rad/sec. Find the Q-factor.

Ans

X 1. 30

X 2. 45

√ 3. 25

X 4. 50

Question ID: 630680198083

Status : Not Attempted and Marked For Review

Chosen Option: --

Find the maximum permissible current through a 400- Ω , 1-W resistor.

Ans

X 1. 5 mA

X 2. 1 mA

√ 3. 50 mA

X 4. 10 mA

Question ID: 630680198067

Status: Answered

Chosen Option: 3

Q.19 With reference to an AC transmission system, state true/false for the following statements.

Statement 1: AC circuit breakers are cheaper than DC circuit breakers.

Statement 2: In an AC line, the size of the conductor is greater than that in a DC line.

X 1. Statement 1 is false; Statement 2 is true

X 2. Statement 1 is true; Statement 2 is false

X 4. Statement 1 is false; Statement 2 is false

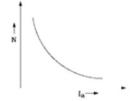
Question ID: 630680198093

Status : Not Attempted and

Marked For Review



Q.20 Which motor exhibits the characteristics shown below?



Ans X 1. DC differentially compound motor

✓ 2. DC series motor

X 3. DC cumulative compound motor

× 4. DC shunt motor

Question ID : 630680198104

Status : **Answered**

Chosen Option : 1

Q.21 In a series RLC circuit, at resonance the _____ is zero.

Ans

X 1. impedance

× 2. resistance

× 4. capacitance

Question ID: 630680198082

Status : Not Attempted and Marked For Review

Chosen Option: --

Q.22 A 3-phase, 50-Hz, 4-pole induction motor runs at a speed of 1400 rpm. Find the slip speed.

Ans

√ 1. 100 rpm

× 2. 50 rpm

X 3. 1500 rpm

X 4. 1400 rpm

Question ID: 630680198096

Status : Not Attempted and Marked For Review





Q.23 Which of the following materials has the highest resistivity?

Ans

X 1. Super conductor

√ 2. Insulator

X 3. Conductor

X 4. Semiconductor

Question ID : 630680198069 Status : Answered

Chosen Option: 2

Q.24 A sinusoidal voltage is expressed as $v(t) = 250 \sin 1256t$. Find the frequency.

Ans

√ 1. 200 Hz

× 2. 50 Hz

X 3. 100 Hz

X 4. 400 Hz

Question ID : 630680198080

Status: Answered

Chosen Option: 1

Q.25 Which of the following relations is correct as per Ohm's law?

Ans

$$\times$$
 2. $I = R \times V$

$$\times$$
 3. $P = I \times R^2$

$$\times$$
 4. $R = V \times I$

Question ID: 630680198066

Status: Answered

Chosen Option: 1

Q.26 Which of the following types of single-phase induction motors requires two capacitors?

Ans

★ 1. Capacitor start induction motor

2. Capacitor start-capacitor run motor

X 3. Permanent split capacitor motor

X 4. Split phase induction motor

Question ID: 630680198097

Status: Answered





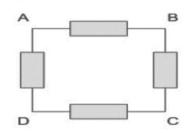
Q.27 If the capacitance between two conductors of a 3-phase transmission line is $10 \mu F$, then the capacitance of each conductor to neutral is Ans × 1. 10 μF × 2. 5 μF × 3. 30 μF √ 4. 20 µF Question ID: 630680198089 Status : Not Attempted and Marked For Review Chosen Option: --State true/false for the following statements. Statement 1: For vacuum, susceptibility is zero. Statement 2: A toroidal magnet has no air gap. X 1. Statement 1 is true; Statement 2 is false ✓ 2. Statement 1 is true: Statement 2 is true X 3. Statement 1 is false; Statement 2 is true X 4. Statement 1 is false; Statement 2 is false Question ID: 630680198078 Status: Marked For Review Chosen Option: 2 Q.29 If an induction motor is made to run at synchronous speed, the value of slip will be Ans √ 1. zero X 2. 1.0 X 3. 0.5 X 4. 0.9 Question ID: 630680198095 Status: Answered Chosen Option: 1 Q.30 With reference to a DC transmission, which of the following statements is INCORRECT? Ans 1. Corona losses are very high. 2. DC system is more efficient than AC. 3. There are no inductance and surges in a DC transmission. * 4. There is no skin effect in a DC transmission.

> Question ID : 630680198092 Status : Answered





Q.31 As per Kirchhoff's voltage law, select the correct formula for the following circuit.



Ans

$$\sqrt{1}$$
 1. $V_{AB} + V_{BC} + V_{CD} + V_{DA} = 0$

$$\times$$
 2. $V_{AB} + V_{CB} + V_{DC} + V_{DA} = 0$

$$\times$$
 3. $V_{AB} + V_{BC} + V_{CD} + V_{AD} = 0$

$$\times$$
 4. $V_{AB} + V_{BC} + V_{DC} + V_{DA} = 0$

Question ID: 630680198075

Status : **Answered**

Chosen Option: 1

Q.32 With reference to the generalized circuit constants of transmission lines, the unit of constant C is ______.

Ans

X 1. Ampere

× 2. Ohm

X 4. Volt

Question ID: 630680198085

Status: Answered

Chosen Option: 3

Q.33 Which of the following elements is NOT a part of a transmission line?

Ans

√ 1. Load

× 2. Support

X 3. Line insulator

X 4. Conductor

Question ID: 630680198086

Status: Answered





Q.34 Find the peak to peak value of the sinusoidal current represented as $i(t) = 400 \sin 314t$.

Ans

X 1. 200 A

X 2. 400 A

√ 3. 800 A

X 4. 600 A

Question ID: 630680198081

Status : Not Attempted and Marked For Review

Chosen Option: --

Q.35 In the rheostatic control method of speed control of a DC motor, which of the following parameters is varied to control

Ans

1. Armature resistance

X 2. Armature voltage

X 3. Field voltage

X 4. Field flux

Question ID: 630680198105

Status: Answered

Chosen Option: 4

Q.36 The two components of the power developed by a salient-pole synchronous motor are:

Ans

1. excitation power and reluctance power

2 friction power and windage power

3. excitation power and magnet power

* 4. reluctance power and friction power

Question ID: 630680198102

Not Attempted and Status : Marked For Review

Chosen Option: --

Q.37 10 resistors are connected in series. If each resistor is of 220 Ω , find the effective resistance of the series.

Ans

√ 1. 2.2 kΩ

× 2. 22 Ω

× 3. 22 kΩ

× 4. 220 kΩ

Question ID: 630680198074

Status: Answered





Q.38 With reference to the corona effect in transmission lines, which of the following statements is INCORRECT?

Ans

- 1. It reduces the transmission efficiency.
- × 2. Corona effect can be reduced by increasing conductor size.
- X 4. Ozone is produced by corona.

Question ID : 630680198091 Status : Answered

Chosen Option: 3

Q.39 A 4-pole wave connected DC generator has 360 conductors and is rotated at 1000 rpm. Find the generated voltage if the useful flux per pole is 30 mWb.

Ans

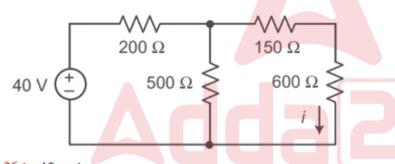
- √ 1. 360 V
- × 2. 480 V
- X 3. 240 V
- X 4. 720 V

Question ID: 630680198103

Status : Answered

Chosen Option: 1

Q.40 Find the current 'i' in the following circuit.



Ans

- X 1. 48 mA
- × 2. 80 mA
- X 3. 40 mA

Question ID: 630680198076

Status: Answered

Chosen Option: 4

Section: Domain Questions (Mechanical)



Q.1 The velocity ratio of driven (N2) to driver (N1) belt considering creep effect is ______.

(Where σ_1 and σ_2 are stress in the belt on the tight and slack side, respectively, E is Young's modulus for the material of the belt, and d_1 and d_2 are diameters of the driver and the follower, respectively)

Ans

$$\begin{tabular}{l} \times 1. $ $\frac{N_2}{N_1} = \frac{d_2}{d_1}. \frac{\left(E + \sqrt{\sigma_1}\right)}{\left(E + \sqrt{\sigma_2}\right)} \end{tabular}$$

$$\label{eq:N2} \bigstar \ 3. \ \frac{N_2}{N_1} = \frac{d_2}{d_1}.\frac{\left(E - \sqrt{\sigma_1}\right)}{\left(E - \sqrt{\sigma_2}\right)}$$

$$\label{eq:N2} \checkmark \text{4.} \ \frac{N_2}{N_1} = \frac{d_1}{d_2} \cdot \frac{\left(E + \sqrt{\sigma_2}\right)}{\left(E + \sqrt{\sigma_1}\right)}$$

Question ID: 630680198143 Status: Answered

Chosen Option: 4

Q.2 Which of the following is NOT a correct expression for modular ratio of composite bars (where E, σ, ε, P and A are Young's modulus, stress, strain, load and area of cross-section, respectively, whereas subscripts 1 and 2 represent values for first and second bar, respectively)?

Ans

$$x 1. \frac{P_1.A_2}{P_2.A_1}$$

$$\times$$
 2. $\frac{\sigma_1}{\sigma_2}$

$$\checkmark$$
 3. $\frac{arepsilon_1}{arepsilon_2}$

$$\times$$
 4. $\frac{E_1}{E_2}$

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Question ID: 630680198130 Status: Answered

Chosen Option: 3

q.3 is a fusion-welding process.

Ans X 1. Friction welding

× 2. Soldering

× 4. Ultrasonic welding

Question ID : **630680198126** Status : **Answered**





Q.4	For a gear, the circle passing through the roots of the teeth is known as	
	Tot a geat, the circle passing unough the roots of the teeth is known as	

Ans

√ 1. dedendum circle

× 2. dedendum

X 3. addendum circle

X 4. addendum

Question ID: 630680198144

Status: Answered

Chosen Option: 1

Q.5 The type of sand mould in which a synthetic liquid resin is mixed with sand and the mixture hardens at room temperature is known as ______.

Ans

X 1. cold-box

× 2. green-sand

√ 3. no-bake

X 4. hot-box

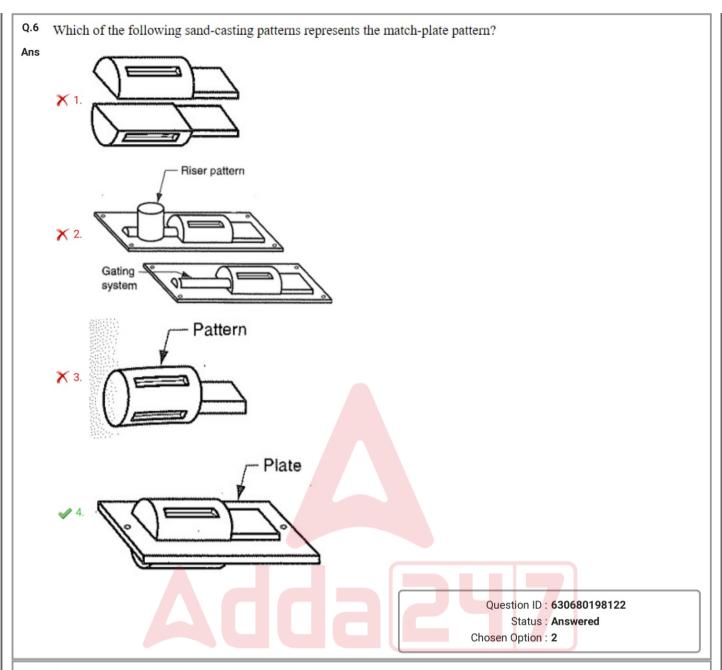
Question ID: 630680198123

Status : Answered









Q.7 Based on the following two statements on the hydraulic grade line (HGL), select the correct answer.

Statements:

- A) The HGL is the energy grade line (EGL) plus the velocity head [$V^2/(2g)$].
- B) The HGL is the height to which liquid would rise in a piezometer tube attached to the flow.

Ans

- ✓ 1. Statement A is incorrect, but statement B is correct.
- × 2. Both statements A and statement B are incorrect.
- X 3. Statement A is correct, but statement B is incorrect.
- X 4. Both statements A and B are correct.

Question ID : 630680198110 Status : Answered



Q.8 Bernoulli's equation can be obtained by single scalar integral of ______.

Ans

- X 1. the Darcy-Weisbach equation
- × 2. the momentum equation
- × 4. the continuity equation

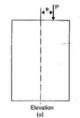
Question ID: 630680198108

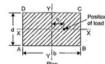
Status: Answered

Chosen Option: 3

Q.9 The maximum stress of a rectangular section subjected to an eccentric load as shown in the given figure is

(Where A = b.d)



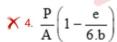


Ans

$$\sqrt[4]{1}$$
1. $\frac{P}{A}$
 $\left(1 + \frac{6.e}{b}\right)$

$$\times$$
 2. $\frac{P}{A}\left(1 + \frac{e}{6.b}\right)$

$$\times 3. \frac{P}{A} \left(1 - \frac{6.e}{b} \right)$$





Question ID : 630680198135 Status : Marked For Review



Q.10 Consider a four-link mechanism shown in the given figure. If link b is fixed and the shortest link d is made a coupler, read the statements that follow and select the correct answer.



Statements:

A) Links a and c would oscillate.

B) This mechanism is known as double-rocker mechanism.

Ans

- X 1. Statement A is incorrect, but statement B is correct.
- X 2. Statement A is correct, but statement B is incorrect.
- 3. Both statements A and statement B are incorrect.
- ✓ 4. Both statements A and B are correct.

Question ID: 630680198138 Status: Answered

Chosen Option: 4

Q.11 The equation of continuity for a compressible fluid flow in a rectangular cartesian coordinate system is ____

(Where u, v, w are the velocities in x, y, z directions, respectively, p is density and t is time)

Ans

$$1. \frac{\partial \rho}{\partial t} + \frac{\partial u}{\partial t} + \frac{\partial v}{\partial t} + \frac{\partial w}{\partial t} = 0$$

$$\label{eq:equation:equation:equation:equation:equation:equation:equation:equation:equation:equation:equation:equation:equation:
$$\frac{\partial \rho}{\partial t} + \frac{\partial \left(\rho u\right)}{\partial t} + \frac{\partial \left(\rho u\right)}{\partial t} + \frac{\partial \left(\rho w\right)}{\partial t} + \frac{\partial \left(\rho w\right)}{\partial t} = 0$$$$

$$\times$$
 3. $\frac{\partial(\rho \mathbf{u})}{\partial t} + \frac{\partial(\rho \mathbf{v})}{\partial t} + \frac{\partial(\rho \mathbf{w})}{\partial t} = 0$

$$\times$$
 4. $\frac{\partial \mathbf{u}}{\partial t} + \frac{\partial \mathbf{v}}{\partial t} + \frac{\partial \mathbf{w}}{\partial t} = 0$

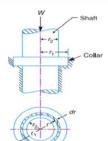
Question ID: 630680198109

Status: Answered



Q.12 When the wear is uniform over the flat single collar bearing surface, as shown in the given figure, the total frictional torque developed is ______.

(Where W is the load transmitted over the bearing area, r_1 is the external radius of the collar, r_2 is the internal radius of the collar, μ is the coefficient of friction)



Ans

$$\times$$
 1. $\frac{2}{3}\mu$.W $(r_1 + r_2)$

$$\times$$
 2. $\frac{2}{3}\mu$.W $(r_1 - r_2)$

$$\times$$
 3. $\frac{1}{2}\mu$.W $(r_1 - r_2)$

$$\checkmark$$
 4. $\frac{1}{2}\mu.W(r_1+r_2)$

Question ID : 630680198141

Status: Answered

Chosen Option: 4

Q.13 In spark-ignition engines, with _____ maximum temperature is attained at _____ mixture during combustion.

Ans

★ 1. dissociation; lean

✓ 2. no dissociation; stoichiometric

× 3. no dissociation; lean

× 4. dissociation; stoichiometric

24 7

Question ID : 630680198116 Status : Answered





Q.14 Based on the following two statements related to positive-displacement pumps (PDPs), select the correct answer.

Statements

- A) At constant shaft rotation speed, a PDP produces nearly constant flow rate and virtually unlimited pressure rise, with little effect of viscosity.
- B) The flow rate of a PDP cannot be varied except by changing the displacement or the speed.

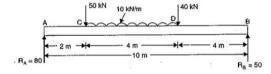
Ans

- X 1. Both statements **A** and statement **B** are incorrect.
- X 2. Statement A is incorrect, but statement B is correct.
- X 3. Statement A is correct, but statement B is incorrect.
- 4. Both statements A and B are correct.

Question ID: 630680198113 Status: Answered

Chosen Option: 2

Q.15 The loading of a simply supported beam is shown in the given figure. Read the statements that follow and select the correct answer.



Statements:

- A) There is abrupt change of shear force from positive to negative value at a point lying between points C and D.
- B) Maximum value of bending moment is at point D.

Ans

- X 1. Both statements A and B are correct.
- ✓ 2. Statement A is correct, but statement B is incorrect.
- 3. Statement A is incorrect, but statement B is correct.
- × 4. Both statements A and statement B are incorrect.

Question ID: 630680198134

Status: Answered

Chosen Option: 1

Q.16 As the fuel-air mixture becomes richer, the power output of an IC engine

Ans

- √ 1. first increases and then decreases
- × 2. first decreases and then increases
- X 3. keeps on decreasing
- × 4. keeps on increasing

Question ID: 630680198117

Status: Answered



Q.17 The coefficient of steadiness of a flywheel is defined as . .

Ans

1.

the ratio of the mean speed to the maximum fluctuation of speed

- × 2. the ratio of the mean speed to the minimum speed
- X 3. the ratio of the minimum speed to the maximum speed
- × 4. the ratio of the mean speed to the maximum speed

Question ID: 630680198140

Status: Answered

Chosen Option: 1

Q.18 For a circular shaft of radius R, subjected to torsion, the relationship between τ (shear stress), R, G (modulus of rigidity), θ (angle of twist) and L (length of shaft) is ____.

Ans

$$\times$$
 1. $\frac{\tau}{L} = \frac{G.\theta}{R}$

$$2. \frac{\tau}{R} = \frac{G.\theta}{L}$$

$$\chi$$
 3. $\frac{\tau}{L} = \frac{G}{R.\theta}$

$$\times$$
 4. $\frac{\tau}{R} = \frac{G}{L.\theta}$

Question ID: 630680198137

Status : **Answered**

Chosen Option: 2

Q.19 is an example of the **third inversion** of a double slider-crank chain mechanism.

Ans

- ★ 1. Rotary internal combustion engine
- × 2. Whitworth quick-return motion mechanism
- X 3. Crank and slotted lever mechanism
- 4. Oldham's coupling

Question ID: 630680198139

Status: Answered



Q.20 Proof resilience is given by _____.

(Where E, σ and V are Young's modulus, stress and volume, respectively).

Ans

- \times 1. $\frac{V.\sigma^2}{E}$
- \times 2. $\frac{E}{V.\sigma^2}$
- \times 3. $\frac{2.E}{V.\sigma^2}$
- \checkmark 4. $\frac{V.\sigma^2}{2.E}$

Question ID : 630680198132

Status : Answered

Chosen Option: 4

Q.21 For a casting with gates at its two sides, the misrun may show up at the centre of the casting. This defect is known as

Ans

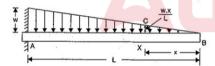
- X 1. gas hole
 - √ 2. cold shut
- X 3. hot tear
- X 4. porosity

Question ID: 630680198124

Status: Answered

Chosen Option : 2

Q.22 Based on the following two statements related to cantilever beam subjected to a gradually varying load (refer to the given figure), select the correct answer.



Statements:

- A) The shear force diagram is parabolic in nature with maximum value at point A.
- B) The bending moment diagram is cubic in nature.

Ans

- X 1. Statement A is incorrect, but statement B is correct.
- ✓ 2. Both statements A and B are correct.
- X 3. Statement A is correct, but statement B is incorrect.
- ★ 4. Both statements A and statement B are incorrect.

Question ID: 630680198133

Status: Answered



Q.23 Based on the following two statements on laminar and turbulent flows, select the correct answer.

Statements:

- A) In a laminar flow, the fluid particles move along smooth paths in a predictable manner.
- B) In a viscous turbulent flow, the motion of an individual fluid particle is not predictable.

Ans

- X 1. Both statements A and statement B are incorrect.
- ✓ 2. Both statements A and B are correct.
- X 3. Statement A is correct, but statement B is incorrect.
- ★ 4. Statement A is incorrect, but statement B is correct.

Question ID : 630680198107

Status : Answered

Chosen Option: 2

Q.24 Which of the following pumps comes under the category of dynamic pumps?

Ans

- X 1. Gear
- × 2. Sliding vane
- X 3. Screw
- ✓ 4. Axial flow

Question ID : 630680198112

Status: Answered

Chosen Option: 4

Q.25 The temperature (T) given by perfect gas temperature scale, based on the temperature of a gas at constant volume, is

(Where P and V are pressure and volume at temperature T, and P_{tp} and V_{tp} are pressure and volume at triple point of water)

Ans

$$1. T = 273.16 \left(\frac{P}{P_{\psi}} \right)$$

$$\times$$
 2. $T = 273.16 \left(\frac{P}{P_{tp}}\right)^2$

$$\times$$
 3. $T = 273.16 \left(\frac{V}{P_{tp}}\right)^2$

$$\times$$
 4. T = 273.16 $\left(\frac{V}{V_{tp}}\right)$

Question ID: 630680198114

Status: Answered



Q.26 _____ is the relationship between Poisson's ratio (γ), bulk modulus of elasticity (K), and modulus of rigidity (G).

Ans

$$\times$$
 1. $\gamma = \frac{(3K + 2G)}{2(G - 3K)}$

$$\checkmark$$
 2. $γ = \frac{(3K - 2G)}{2(G + 3K)}$

$$\times$$
 3. $\gamma = \frac{2(G - 3K)}{(3K + 2G)}$

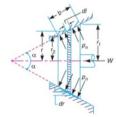
$$\times$$
 4. $\gamma = \frac{2(G + 3K)}{(3K - 2G)}$

Question ID: 630680198131 Status: Answered

Chosen Option : 2

 $\textbf{Q.27} \quad \text{When the wear is uniform over the cone clutch as shown in the given figure, the total frictional torque developed is}$

(Where W is the axial thrust, $R = \left\lceil \frac{r_1 + r_2}{2} \right\rceil$, μ is the coefficient of friction, α is semi angle of the cone)





Ans

- \times 1. $\frac{1}{2}\mu$ WR.cosec (α)
- \times 2. $\frac{2}{3}\mu$ WR.cosec (α)
- \checkmark 3. μ WR.cosec(α)
- \times 4. $\frac{3}{2}\mu$ WR.cosec (α)

dda[24]7

Question ID : **630680198142** Status : **Marked For Review**

Chosen Option: 2

Q.28 Which of the following methods is an example of an air-cooling system for engines?

Ans

- Pressure cooling system
- 2. Cooling fins
- X 3. Non-return system
- X 4. Thermosyphon system

Question ID : 630680198120 Status : Answered





Q.29 Lathes that do NOT have tailstocks are called .

Ans X 1. bar machines

√ 2. chucking machines

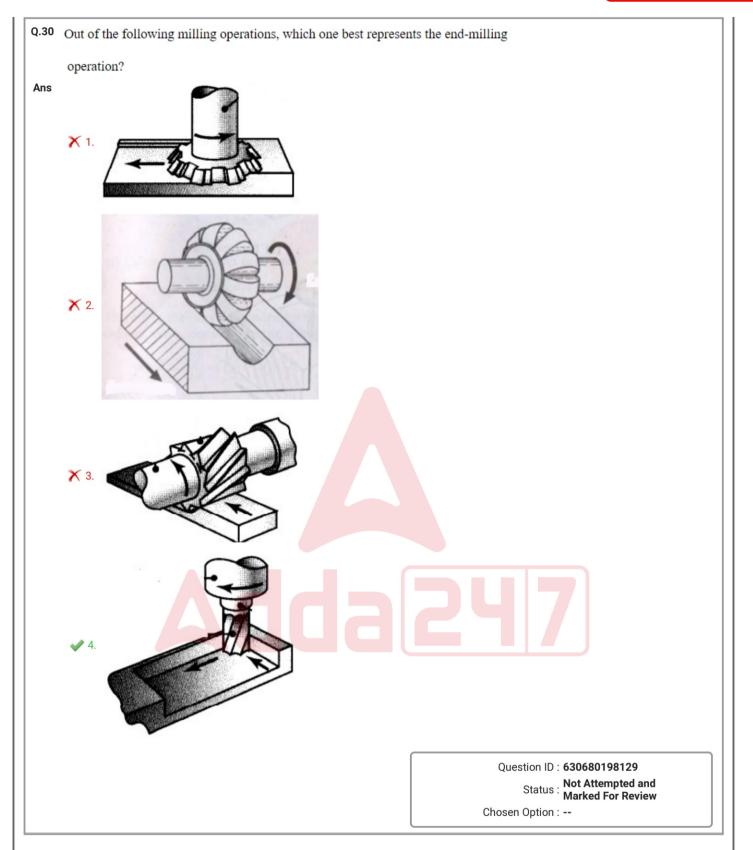
× 3. bench lathes

X 4. tracer lathes

Question ID : 630680198128 Status : Answered Chosen Option : 4

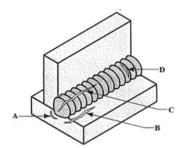








Q.31 Of the various forms of welding cracks shown in the given figure, which is the underbead crack?



Ans

1 Δ

X 2. D

X 3. **B**

X 4. C

Question ID: 630680198127

Status : Answered

Chosen Option: 4

Q.32 Euler crippling load formula for a column with both ends fixed is ______

(Where E, I and Le are. Young's modulus, moment of inertia and equivalent length, respectively)

Ans

$$\times$$
 1. $\frac{\pi^2 \cdot \text{E,I}}{4 \text{L}_a^2}$

$$\times$$
 2. $\frac{2\pi^2 \cdot \text{E.I.}}{\text{L}_{\text{e}}^2}$

$$\sim$$
 3. $\frac{\pi^2.E.I}{L_a^2}$

$$\times$$
 4. $\frac{4\pi^2 \cdot E \cdot I}{L_a^2}$

dda 247

Question ID: 630680198136

Status : **Answered**

Chosen Option: 4

Q.33 ______ is an example of the first inversion of a double slider-crank chain mechanism.

Ans

X 1. Crank and slotted lever mechanism

✓ 2. Elliptical Trammel

X 3. Rotary internal combustion engine

X 4. Whitworth quick-return motion mechanism

Question ID: 630680198145

Status: Answered





Q.34 Based on the following two statements on friction factor in pipe flows, select the correct answer.

Statements

- A) In case of a laminar fully developed flow through pipes, the friction factor depends on the Reynolds number and pipe roughness.
- **B)** The friction factor at a given the Reynolds number, in the turbulent region, depends on the relative roughness (ratio of average roughness to the diameter of the pipe) rather than absolute roughness.

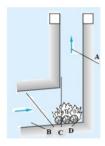
Ans

- 1. Statement A is incorrect, but statement B is correct.
- X 2. Both statements A and statement B are incorrect.
- X 3. Both statements A and B are correct.
- ★ 4. Statement A is correct, but statement B is incorrect.

Question ID : 630680198111 Status : Answered

Chosen Option: 1

Q.35 In the fire chimney shown in the given figure, Bernoulli's equation is valid at which region (represented by points A, B, C and D)?



Ans

1. ∆

X 2. F

X 3. D

X 4. C

Question ID: 630680198106 Status: Answered



Q.36 Penetration, which is a casting defect, is best represented by which of the following figures? Ans Question ID: 630680198125 Status: Answered Chosen Option: 1 Q.37 In a steam turbine, the angle which the absolute velocity of steam at inlet makes with the plane of moving blades is Ans

★ 1. exit angle of moving blade

 \times 2. inlet angle of fixed blade

X 3. inlet angle of moving blade

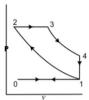
Question ID: 630680198121

Status: Answered



Q.38 The efficiency of an air standard diesel cycle, represented by the following P-v diagram, is ______.

(Where $r_0 = \frac{V_1}{V_2}$, $r_e = \frac{V_3}{V_2}$, and γ represent the ratio of specific heats at constant pressure and constant volume)



Ans

$$\times$$
 1. $1 - \frac{(r_0)^{\gamma-2}(r_c-1)}{(\gamma-1)\{(r_c)^{\gamma-1}-1\}}$

$$\times 2. 1 - \frac{(r_0)^{\gamma-1}(r_e-1)}{\gamma\{(r_e)^{\gamma}-1\}}$$

$$\times$$
 3. $1 - \frac{\left\{ \left(\mathbf{r}_{c} \right)^{\gamma-1} - 1 \right\}}{\left(\gamma - 1 \right) \left(\mathbf{r}_{0} \right)^{\gamma-2} \left(\mathbf{r}_{c} - 1 \right)}$

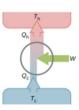
$$\checkmark 4. 1 - \frac{\{(r_c)^{\gamma} - 1\}}{\gamma(r_0)^{\gamma-1}(r_c - 1)}$$

Question ID: 630680198119

Status : **Answered**

Chosen Option : 4

Q.39 The coefficient of performance (COP) relation for reversible refrigerator, operating between temperatures T_c and T_h as shown in the given figure, is:



Adda2

Ans

$$\times$$
 1. COP = $\frac{1}{1 - (T_h/T_c)}$

$$\times$$
 2. $COP = \frac{1}{1 - (T_c/T_h)}$

$$\times$$
 4. COP = $\frac{1}{(T_c/T_h)-1}$

Question ID : 630680198115

Status: Answered



Q.40 The entropy change (ΔS) for irreversible process is equal to _____.

(Where T is the temperature and Q is the heat transfer)

Ans

$$\times$$
 1. $\Delta S = \frac{\delta Q}{T}$

$$\times$$
 2. $\Delta S \ge \frac{\delta Q}{T}$

$$X$$
 3. $\Delta S \le \frac{\delta Q}{T}$

$$\checkmark$$
 4. $\Delta S > \frac{\delta Q}{T}$

Question ID: 630680198118

Status: Answered

Chosen Option: 4

Section: Reasoning

Q.1 Eight dwarfs, P, O, A, B, C, D, E and F, are sitting around a square table, facing the centre of the table. Four of them are sitting at the corners, while four are sitting at the exact centre of the sides. E is exactly between B and O. A is second to the right of E. F and O are diagonally opposite to each other. B and C are diagonally opposite to each other. F is at the immediate left of D. B, at a corner, is third to the left of D. Who is sitting at the immediate left of O?

Ans

Question ID: 630680198146

Status: Answered

Chosen Option: 1

Q.2 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.)

MECHANIC: GARAGE:: LAWYER:?

Ans

X 1. UNIVERSITY

X 2. JUDGE

X 3. LAW

4. COURT

Question ID: 630680198150

Status : Answered





Q.3 If '-' means 'division', 'x' means 'addition', '\(\div'\) means 'multiplication' and '+' means 'subtraction', what will be the value of the following expression?

 $[\{(15 + 7) \times (4 \times 2)\} - (1 \div 2)] \div 2$

Ans

X 1.6

2. 14

X 3.8

X 4. 2

Question ID: 630680198155

Status: Answered

Chosen Option: 2

Q.4 Select the number from among the given options that can replace the question mark (?) in the following series.

42, 46, 62, 98, 162, ?

Ans

X 1. 260

X 2. 250

X 3. 280

4. 262

Question ID: 630680198153

Status : Not Attempted and Marked For Review

Chosen Option: --

Q.5 In a certain code language, 'EVERY' is coded as 'CJWFW' and 'ABOUT' is coded as 'HGMZA'. How will 'OTHER' be coded in that language?

Ans

1. JWTHM

X 2. JWTIN

X 3. JWSHN

X 4. JWUHM

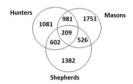
Question ID: 630680198148

Status : Not Attempted and Marked For Review





Q.6 Study the given diagram carefully and answer the question that follows. The numbers in different sections indicate the numbers of persons in a small village with different professions.



What is the ratio of the number of shepherds who are masons but not hunters to the number of shepherds who are hunters but not masons?

Ans

1. 526:602

X 2. 209: 526

X 3. 735 : 526

X 4. 1382 : 602

Question ID: 630680198147

Status: Answered

Chosen Option: 1

Q.7 Select correct combination of mathematical signs that can sequentially replace the # signs and balance the given equation.

15 # 8 # 21 # 3 # 5 # 2 # 4

Ans

✓ 1. -, +, ÷, =, x, +

X 2. +, -, ÷, ×, =, +

X 3. -, +, ÷, ×, =, +

X 4. −, +, ×, =, ÷, +

Question ID: 630680198154

Status: Answered



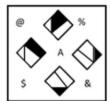


Q.8 Select the figure from among the given options that can replace the question mark (?) in the following series. Ans Question ID: 630680198151 Status : Answered Chosen Option: 4

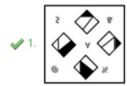


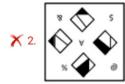


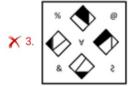
Q.9 Select the correct water image of the given figure.

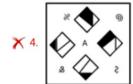


Ans









Question ID: 630680198152

Status: Answered

Chosen Option: 1

Q.10 If

'A @ B' means 'A is the wife of B',

'A \$ B' means 'A is the mother of B',

'A & B' means 'A is the mother of B's mother',

'A # B' means 'A is the son of B' and

'A ^ B' means 'A is the brother of B's father',

then how is P related to T in the following expression?

P^Q#R@S#T

Ans X 1. Son's son

2. Son

X 3. Sister's son

X 4. Brother

Question ID : 630680198149 Status : Answered

Chosen Option: 2

Section: Quantitative Aptitude





Q.1 Ketan travels a certain distance at his own speed, but when he reduces his speed by 8km/h, his time duration for the journey increases by 11 hours, while if he increases his speed by 4 km/h from his original speed, he takes 4 hours less than the original time taken. What is the distance travelled by him?

Ans X 1. 1700 km

√ 2. 1760 km

× 3. 1600 km

× 4. 1650 km

Ouestion ID: 630680198162

Status : Not Attempted and Marked For Review

Chosen Option: --

Q.2 If the average of x - 1, 2x + 1, x + 3, 3x + 2 and x is 9, then the value of x is:

Ans X 1. 7

. . ,

✓ 2. 5X 3. 8

X 4. 6

Question ID: 630680198158

Status : Answered

Chosen Option: 2

Q.3 Sourya bought 3600 eggs at ₹60 a dozen. At what price per hundred must be sell the eggs so as to earn a profit of 12.5%?

Ans

X 1. ₹562.75

× 2. ₹562.10

√ 3. ₹562.50

X 4. ₹562.25

Question ID: 630680198161

Status: Answered

Chosen Option: 3

Q.4 The number of lead balls, each of 0.4cm radius, that can be made from a sphere whose surface area is $2304 \,\pi$ cm² is:

Ans

X 1. 2,25,000

√ 2. 2,16,000

× 3. 2,89,000

X 4. 2,56,000

Question ID: 630680198165

Status: Answered





Q.5 The area (in square units) of the triangle formed by the vertices (3,4), (5,6) and (7,3) is:

Ans

√ 1. 5

X 2. 8

X 3. 3

X 4. 9

Question ID: 630680198164

Status : Not Attempted and Marked For Review

Chosen Option: --

Q.6 If $7^x \times 3^{43} \times 147^{12} \times 343^5 = 21^{55}$, then the value of x is:

Ans

X 1. 18

√ 2. 16

X 3. 17

X 4. 15

Question ID: 630680198156

Status: Answered

Chosen Option : 1

Q.7 The value of $0.2\bar{8} + 0.1\bar{5} - 0.2\bar{3}$ is:

Ans

× 1. $\frac{23}{90}$

× 2. $\frac{17}{90}$

 \checkmark 3. $\frac{19}{90}$

 \times 4. $\frac{13}{90}$

Adda 247

Question ID: 630680198157 Status: Answered



Q.8 In one-day international world cup cricket tournament, six bowlers have taken 15 wickets each, eight bowlers have taken 18 wickets each, ten bowlers have taken 22 wickets each, fifteen bowlers have taken 26 wickets each, and seven bowlers have taken 30 wickets each. The mean number of wickets taken by the bowlers is: (correct to three decimal places)

Ans

X 1. 23,123

× 2. 24.025

X 3. 25.021

4. 22.913

Question ID: 630680198159

Status : Answered

Chosen Option: 4

Q.9 Last year, Arjun's salary was ₹65,400 and this year his salary is ₹71,286. What is the percentage increase in Arjun 's salary?

Ans

X 1. 8.5%

√ 2. 9.0%

X 3. 9.5%

× 4. 8.0%

Question ID: 630680198160

Status: Answered

Chosen Option: 2

Q.10 Ajay can do a certain work in 52 days. Bharat is 30% more efficient than Ajay. They work together for 13 days. How many days will Chetan alone take to complete the remaining work, if Chetan is 8% more efficient than Ajay?

Ans

$$\times$$
 1. $19\frac{31}{54}$ days

$$\times$$
 2. $22\frac{19}{54}$ days

$$\sqrt{4.} 20\frac{25}{54} \text{days}$$

7/

Question ID: 630680198163 Status: Answered

Chosen Option: 1

Section: General Awareness

Q.1 Maya Devi Temple which is also known as the birth place of Gautam Buddha is located at:

Ans X 1. Dharamsala

X 2. Rajgir

3. Lumbini

X 4. Sarnath

Question ID : 630680198168 Status : Answered





Q.2 As of July 2022, the microfinance loan is defined as a collateral-free loan given to a household having annual household income up to:

Ans

X 1. ₹2,00,000

2. ₹3,00,000

X 3. ₹1,00,000

X 4. ₹4,00,000

Question ID: 630680198170

Not Attempted and Status: Marked For Review

Chosen Option: --

Q.3 The Hindustan Socialist Republican Association (HSRA) in 1928 was later reorganised and established as Hindustan Socialist Republican Army, in:

Ans

X 1. Poona

X 2. Lucknow

X 3. Calcutta

4. Delhi

Question ID: 630680198167

Status: Answered Chosen Option: 4

Q.4 Which of the following statements is INCORRECT about tropical deciduous forests?

Ans

1. They are also called the monsoon forests.

2. Deodar is the most dominant species of this forest.

X 3. The important species in these forests are bamboo, sal, shisham, sandalwood, khair, kusum and arjun.

X 4. These are the most widespread forests of India.

Question ID: 630680198171

Status: Marked For Review

Chosen Option: 2

Q.5 भारतीय संविधान, किस संविधान संशोधन द्वारा छह से चौदह वर्ष की आयु वर्ग के लिए शिक्षा का अधिकार प्रदान करता है?

Ans

🗙 1. संविधान (चौरासीवां संशोधन) अधिनियम, 2001

🗶 2. संविधान (तेईसवां संशोधन) अधिनियम, 1969

🥒 3. संविधान (छियासीवां संशोधन) अधिनियम, 2002

🗙 ४. संविधान (बहत्तरवां संशोधन) अधिनियम, 1992

Question ID: 630680198173

Status: Answered





Public sector bank, Punjab National Bank (PNB) signed a memorandum of understanding __ under its flagship scheme, PNB Rakshak Plus Scheme in July 2022. (MoU) with the ___ 1. Indian Air Force Ans X 2. Indian Coast Guard X 3. Indian Army X 4. Indian Navy Question ID: 630680198169 Not Attempted and Status: Marked For Review Chosen Option: --Q.7 In a human body, most of the DNA is located in the cell nucleus but a small amount of DNA can also be found in the: X 1. lysosome Ans X 2. ribosome X 3. cell membrane 4. mitochondria Question ID: 630680198172 Status: Answered Chosen Option: 4 Q.8 How many gold medals has India won at the U20 Asian Wrestling Championships in Manama, Bahrain in July 2022? **X** 1. 5 **2**.4 **X** 3.3 **X** 4. 6 Question ID: 630680198175 Not Attempted and Status : Marked For Review Chosen Option: --Which Article of the Indian Constitution relates to the representation of the Anglo-Indian Q.9 community in the Legislative Assemblies of the states? X 1. Article 319 Ans 2. Article 324 3. Article 333 4. Article 311 Question ID: 630680198174 Status: Answered





Q.10 What is the supercomputing capacity of the supercomputer, PARAM Ganga developed by the Centre for Development of Advanced Computing (C-DAC)? X 1. 2.89 petaflops Ans × 2. 3.94 petaflops 3. 1.66 petaflops X 4. 0.46 petaflops Question ID: 630680198166 Status: Not Answered Chosen Option: --Section: English Language Q.1 Select the most appropriate option to fill in the blanks. I got ____ the bed and covered myself ____ a blanket. Ans X 1. in; by 2. into; with X 3. at; from X 4. on; through Question ID: 630680198177 Status: Answered Chosen Option: 4 Q.2 Select the most appropriate synonym of the given word to fill in the blank. **Apparent** that he hadn't slept in the bed at all. It was X 1. vague Ans X 2. actual X 3. deceptive 4. obvious Question ID: 630680198178 Status: Answered Chosen Option: 4 Q.3 Select the most appropriate meaning of the given idiom. Burn the candle at both ends X 1. To work through the night 2. To earn a living for the family X 3. To annoy someone a lot 4. To overwork until exhausted Question ID: 630680198181

Question ID : 630680198181 Status : Answered





- Q.4 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. Over the last five years, I have managed to acquire quite a collection.
 - B. I work in a bank and spend at least half my salary on these.
 - C. Old books, especially, fascinate me.
 - D.I am what is usually described as a bookworm.

Ans

1. DCBA

X 2. ACDB

X 3. DABC

X 4. BCAD

Question ID: 630680198182

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.

He stood in the doorway making occasional efforts to whistle through parted lips.

Ans X 1. He stood in the doorway

2. No error

X 3. to whistle through parted lips

X 4. making occasional efforts

Question ID: 630680198179

Status: Answered

Chosen Option: 3

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

Bury the hatchet

A -- -

X 1. To leave someone alone

X 2. To commit to an action

3. To make peace

X 4. To ignore danger

Question ID : 630680198180

Status: Answered

Chosen Option: 4

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

I knew nothing beyond what he _____ me about himself.

Ans

1. had told

X 2. is telling

X 3. has told

X 4. tells

Question ID: 630680198176

Status: Answered





Comprehension:

Read the given passage and answer the questions that follow.

Hundreds more people were evacuated from their homes as wildfires blistered land in France, Spain and Portugal on Friday, while officials in Europe issued health warnings for the heat wave in the coming days.

More than 1,000 firefighters, supported by water-bomber aircraft, have battled since Tuesday to control two blazes in southwestern France that have been fanned by scorching heat, tinder-box conditions and strong winds. While temperatures dipped a little in Portugal, they were still expected to top 40 degrees Celsius (104 Fahrenheit) in some places, with five districts on red alert and more than 1,000 firefighters tackling 17 wildfires, authorities said.

In Spain, a new wildfire broke out in the south of the country after blazes in the west in the past week. More than 400 people were evacuated from the hills of Mijas, a town popular with northern European tourists in the province of Malaga.

Meanwhile, the worst drought in over 70 years reduced Italy's longest river, the Po, to little more than a trickle in places, with temperatures expected to rise next week. Italy has declared a state of emergency along the Po, which supports about a third of the country's agricultural production.

SubQuestion No: 8

Q.8 In which country has the temperature dropped a little at present?

Δns

X 1. Spain

X 2. France

3. Portugal

X 4. Italy

Question ID: 630680198186 Status: Answered

Chosen Option: 1

Comprehension:

Read the given passage and answer the questions that follow.

Hundreds more people were evacuated from their homes as wildfires blistered land in France, Spain and Portugal on Friday, while officials in Europe issued health warnings for the heat wave in the coming days.

More than 1,000 firefighters, supported by water-bomber aircraft, have battled since Tuesday to control two blazes in southwestern France that have been fanned by scorching heat, tinder-box conditions and strong winds. While temperatures dipped a little in Portugal, they were still expected to top 40 degrees Celsius (104 Fahrenheit) in some places, with five districts on red alert and more than 1,000 firefighters tackling 17 wildfires, authorities said.

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Meanwhile, the worst drought in over 70 years reduced Italy's longest river, the Po, to little more than a trickle in places, with temperatures expected to rise next week. Italy has declared a state of emergency along the Po, which supports about a third of the country's agricultural production.

SubQuestion No: 9

Q.9 The passage mentions several concerns. Which of the following is NOT a concern here?

Ans

1. Agricultural production in Europe.

X 2. Health warnings issued for the people of Europe.

X 3. Wild fires in several countries of Europe.

4. Heat wave scorching Europe.

Question ID: 630680198184 Status: Not Answered





Comprehension:

Read the given passage and answer the questions that follow.

Hundreds more people were evacuated from their homes as wildfires blistered land in France, Spain and Portugal on Friday, while officials in Europe issued health warnings for the heat wave in the coming days.

More than 1,000 firefighters, supported by water-bomber aircraft, have battled since Tuesday to control two blazes in southwestern France that have been fanned by scorching heat, tinder-box conditions and strong winds. While temperatures dipped a little in Portugal, they were still expected to top 40 degrees Celsius (104 Fahrenheit) in some places, with five districts on red alert and more than 1,000 firefighters tackling 17 wildfires, authorities said.

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Meanwhile, the worst drought in over 70 years reduced Italy's longest river, the Po, to little more than a trickle in places, with temperatures expected to rise next week. Italy has declared a state of emergency along the Po, which supports about a third of the country's agricultural production.

SubQuestion No: 10

- Q.10 Read the given sentences and select the correct option.
 - A. Wild fires are breaking out in several countries of Europe.
 - B. Europe is hit by an unprecedented heat wave.

Ans X 1. Both statements A and B are true but B does not explain the reason for A.

2. Both statements A and B are true and B explains the reason for A.

X 3. Statement A is true but statement B is false

X 4. Statement A is false but statement B is true

Question ID: 630680198185 Status: Not Answered

