

section: Physics

Q.1

An electron moves in a circular orbit with uniform speed 'v'. It produces a magnetic field 'B' at the centre of the circle. The radius of the circle is

[μ_0 = permeability of free space, e = electronic charge]

Ans

1. $\left(\frac{\mu_0 e v}{B}\right)^{1/2}$

2. $\frac{\mu_0 e B}{4\pi v}$

3. $\left(\frac{\mu_0 e v}{4\pi B}\right)^{1/2}$

4. $\frac{\mu_0 e v}{4\pi B}$

Question Type : MCQ

Question ID : 37135117182

Option 1 ID : 37135168728

Option 2 ID : 37135168726

Option 3 ID : 37135168727

Option 4 ID : 37135168725

Status : Answered

Chosen Option : 2

Q.2 Two circular loops A and B of radii 'R' and 'NR' respectively are made from a uniform wire. Moment of inertia of B about its axis is 3 times that of A about its axis. The value of N is

Ans

1. $[5]^{\frac{1}{3}}$

2. $[3]^{\frac{1}{3}}$

3. $[4]^{\frac{1}{3}}$

4. $[2]^{\frac{1}{3}}$

Question Type : **MCQ**

Question ID : **37135117159**

Option 1 ID : **37135168636**

Option 2 ID : **37135168635**

Option 3 ID : **37135168634**

Option 4 ID : **37135168633**

Status : **Answered**

Chosen Option : **3**

Q.3 A uniform metal wire has length 'L', mass 'M' and density 'ρ'. It is under tension 'T' and 'v' is the speed of transverse wave along the wire. The area of cross-section of the wire is

Ans

1. $\frac{v^2 \rho}{T}$

2. $\frac{T}{v^2 \rho}$

3. $T^2 \rho v$

4. $Tv^2 \rho$

Question Type : **MCQ**

Question ID : **37135117165**

Option 1 ID : **37135168657**

Option 2 ID : **37135168660**

Option 3 ID : **37135168659**

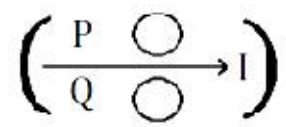
Option 4 ID : **37135168658**

Status : **Answered**

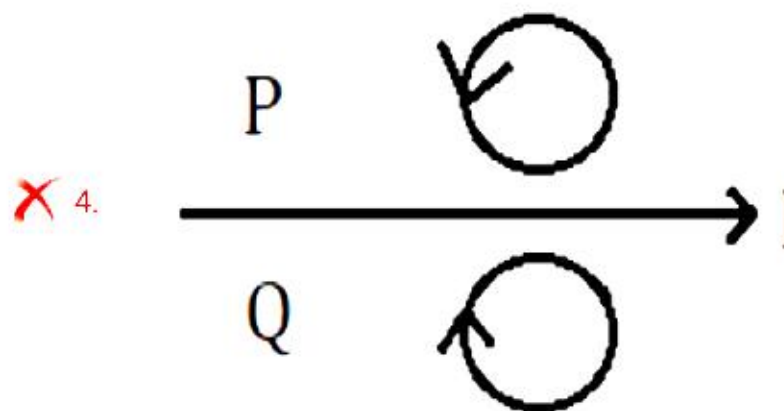
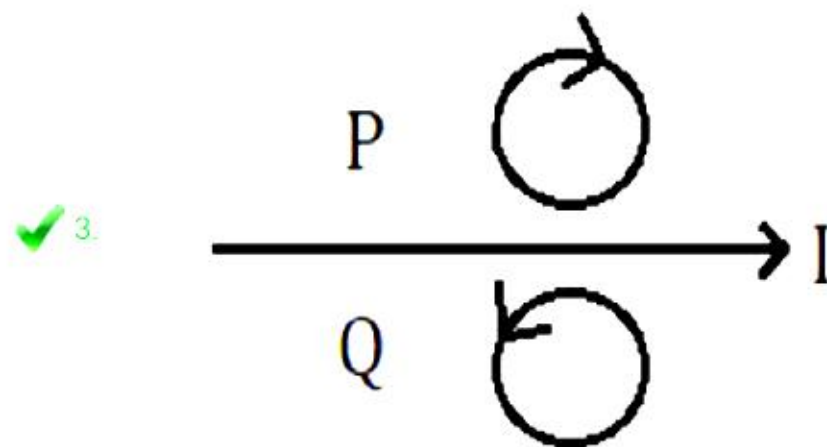
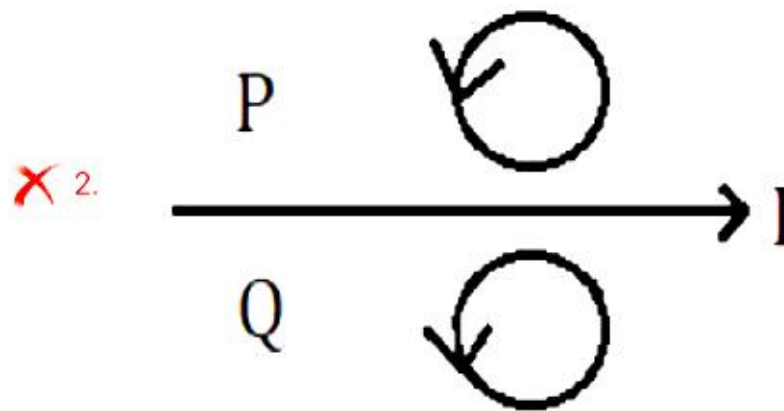
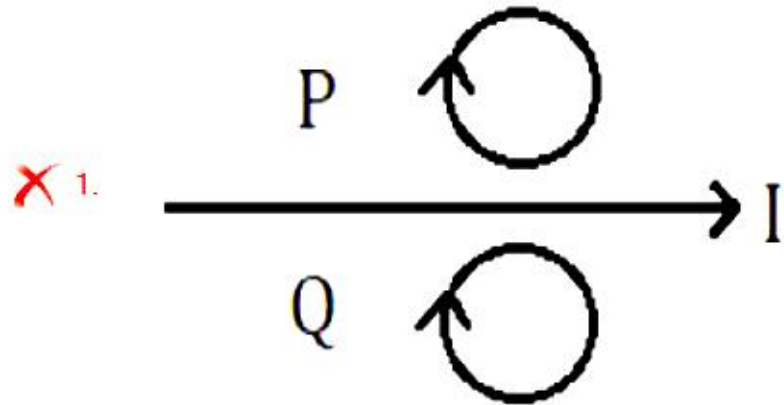
Chosen Option : **1**

Q.4

Metal rings 'P' and 'Q' are lying in the same plane where current 'I' is increasing steadily. The induced current in metal rings is shown correctly in figure



Ans



Question Type : MCQ

Question ID : 37135117166

Option 1 ID : 37135168661

Option 2 ID : 37135168661



collegedunia
India's largest Student Review Platform

Option 3 ID : 37135168662
Option 4 ID : 37135168663
Status : Answered
Chosen Option : 2

Q.5 The fundamental frequency of a closed pipe is 400 Hz. If $\frac{1}{3}$ rd pipe is filled with water, the frequency of 2nd harmonic of the pipe will be (Neglect end correction)

Ans

1. 600 Hz

2. 1800 Hz

3. 1200 Hz

4. 300 Hz

Question Type : MCQ
Question ID : 37135117196
Option 1 ID : 37135168783
Option 2 ID : 37135168781
Option 3 ID : 37135168782
Option 4 ID : 37135168784
Status : Answered
Chosen Option : 2

Q.6

Two capacitors of capacities $2\ \mu\text{F}$ and $4\ \mu\text{F}$ are connected in parallel. A third capacitor of $6\ \mu\text{F}$ capacity is connected in series with this combination. A battery of $12\ \text{V}$ is connected across this combination. The charge on $2\ \mu\text{F}$ capacitor is

Ans

✓ 1. $12\ \mu\text{C}$

✗ 2. $16\ \mu\text{C}$

✗ 3. $14\ \mu\text{C}$

✗ 4. $11\ \mu\text{C}$

Question Type : MCQ

Question ID : 37135117174

Option 1 ID : 37135168695

Option 2 ID : 37135168693

Option 3 ID : 37135168694

Option 4 ID : 37135168696

Status : Answered

Chosen Option : 2

Q.7 The compressibility of water is $5 \times 10^{-10} \text{ m}^2/\text{N}$. Pressure of $15 \times 10^6 \text{ Pa}$ is applied on 100 ml volume of water. The change in the volume of water is

Ans

- 1. 0.75 ml increase.
- 2. 1.50 ml increase.
- 3. 0.75 ml decrease.
- 4. zero.

Question Type : MCQ
Question ID : 37135117155
Option 1 ID : 37135168619
Option 2 ID : 37135168620
Option 3 ID : 37135168618
Option 4 ID : 37135168617
Status : Answered
Chosen Option : 3

Q.8 Let $x = \pi R \left(\frac{P^2 - Q^2}{2} \right)$, where P, Q and R are lengths. The physical quantity 'x' is

Ans

- 1. volume
- 2. area
- 3. velocity
- 4. length

Question Type : MCQ
Question ID : 37135117152
Option 1 ID : 37135168605
Option 2 ID : 37135168606
Option 3 ID : 37135168608
Option 4 ID : 37135168607
Status : Answered
Chosen Option : 1

Q.9 A milliammeter of resistance 40Ω has a range 0-30 mA. What will be the resistance used in series to convert it into voltmeter of range 0-15 V ?

Ans

1. $640\ \Omega$

2. $920\ \Omega$

3. $560\ \Omega$

4. $460\ \Omega$

Question Type : MCQ

Question ID : 37135117168

Option 1 ID : 37135168669

Option 2 ID : 37135168672

Option 3 ID : 37135168670

Option 4 ID : 37135168671

Status : Answered

Chosen Option : 3

Q.10

Two bodies 'A' and 'B' of equal mass are suspended from two separate massless springs of force constant ' k_1 ' and ' k_2 ' respectively. The bodies oscillate vertically such that their maximum velocities are equal. The ratio of the amplitudes of body A to that of body B is

Ans

✓ 1. $\sqrt{\frac{k_2}{k_1}}$

✗ 2. $\frac{k_1}{k_2}$

✗ 3. $\sqrt{\frac{k_1}{k_2}}$

✗ 4. $\frac{k_2}{k_1}$

Question Type : MCQ

Question ID : 37135117194

Option 1 ID : 37135168775

Option 2 ID : 37135168773

Option 3 ID : 37135168774

Option 4 ID : 37135168776

Status : Answered

Chosen Option : 3

Q.11 Three points masses, each of mass 'm' are placed at the corners of an equilateral triangle of side ' ℓ '. The moment of inertia of the system about an axis passing through one of the vertices and parallel to the side joining other two vertices, will be

Ans

✓ 1. $\frac{3}{2} m\ell^2$

✗ 2. $\frac{3}{4} m\ell^2$

✗ 3. $\frac{1}{2} m\ell^2$

✗ 4. $\frac{1}{4} m\ell^2$

Question Type : MCQ

Question ID : 37135117198

Option 1 ID : 37135168790

Option 2 ID : 37135168789

Option 3 ID : 37135168791

Option 4 ID : 37135168792

Status : Answered

Chosen Option : 3

Q.12

Two spherical rain drops reach the surface of the earth with terminal velocities having ratio 16:9. The ratio of their surface area is

Ans

1. 4 : 3

2. 64 : 27

3. 16 : 9

4. 9 : 16

Question Type : MCQ

Question ID : 37135117187

Option 1 ID : 37135168745

Option 2 ID : 37135168746

Option 3 ID : 37135168747

Option 4 ID : 37135168748

Status : Answered

Chosen Option : 1

Q.13

van de Graaff generator produces

Ans 1.

low voltage and low current.

2.

high voltage and high current.

3.

high voltage and low current.

4.

low voltage and high current.

Question Type : **MCQ**

Question ID : **37135117151**

Option 1 ID : **37135168603**

Option 2 ID : **37135168601**

Option 3 ID : **37135168602**

Option 4 ID : **37135168604**

Status : **Answered**

Chosen Option : **3**

Q.14

A metal rod has length, cross-sectional area and Young's modulus as 'L', 'A' and 'Y' respectively. If the elongation in the rod produced is ' ℓ ' then work done is proportional to

Ans

1. ℓ

2. ℓ^4

3. ℓ^2

4. ℓ^3

Question Type : MCQ

Question ID : 37135117185

Option 1 ID : 37135168737

Option 2 ID : 37135168740

Option 3 ID : 37135168738

Option 4 ID : 37135168739

Status : Answered

Chosen Option : 3

Q.15

By increasing the aperture of the objective lens, wavelength of light, focal length of the objective lens and the resolving power of an astronomical telescope respectively

Ans

✗ 1.

is not affected, increases, decreases.

✓ 2.

increases, decreases, is not affected.

✗ 3.

decreases, increases, is not affected.

✗ 4.

is not affected, decreases, increases.

Question Type : MCQ

Question ID : 37135117188

Option 1 ID : 37135168751

Option 2 ID : 37135168749

Option 3 ID : 37135168750

Option 4 ID : 37135168752

Status : Answered

Chosen Option : 1

Q.16 If the maximum kinetic energy of emitted electrons in photoelectric effect is 3.2×10^{-19} J and the work function for metal is 6.63×10^{-19} J, then stopping potential and threshold wavelength respectively are

[Planck's constant $h = 6.63 \times 10^{-34}$ J.s]

[Velocity of light $c = 3 \times 10^8 \frac{\text{m}}{\text{s}}$]

[charge on electron = 1.6×10^{-19} C]

Ans

1. 3V, 4000Å

2. 4V, 6000Å

3. 1V, 1000Å

4. 2V, 3000Å

Question Type : **MCQ**

Question ID : **37135117158**

Option 1 ID : **37135168630**

Option 2 ID : **37135168629**

Option 3 ID : **37135168632**

Option 4 ID : **37135168631**

Status : **Answered**

Chosen Option : **4**

Q.17

For a paramagnetic substance, the magnetic susceptibility is

Ans

1. small and negative

2. large and negative

3. small and positive

4. large and positive

Question Type : **MCQ**

Question ID : **37135117199**

Option 1 ID : **37135168793**

Option 2 ID : **37135168796**

Option 3 ID : **37135168794**

Option 4 ID : **37135168795**

Status : **Answered**

Chosen Option : **3**

Q.18 In an intrinsic semiconductor, at an ordinary temperature, the correct relation between the number of electrons ' n_e ' and number of holes ' n_h ' is

Ans

1. $n_e > n_h$

2. $n_e = n_h$

3. $n_e = n_h = 0$

4. $n_e < n_h$

Question Type : **MCQ**

Question ID : **37135117180**

Option 1 ID : **37135168717**

Option 2 ID : **37135168720**

Option 3 ID : **37135168719**

Option 4 ID : **37135168718**

Status : **Answered**

Chosen Option : **3**

Q.19 A ray of light is incident at an angle 'i' on one face of a thin angled prism. The ray emerges normally from the other face. Refractive index of the glass prism is 'n' and angle of prism is 'A'. The value of 'i' is

Ans

1. $An^2.$

2. $A^2n.$

3. $An.$

4. $\frac{1}{An}.$

Question Type : **MCQ**

Question ID : **37135117197**

Option 1 ID : **37135168785**

Option 2 ID : **37135168787**

Option 3 ID : **37135168788**

Option 4 ID : **37135168786**

Status : **Answered**

Chosen Option : **4**

Q.20 A body of mass 64 g is made to oscillate turn by turn on two different springs A and B. Spring A and B has force constant $4 \frac{\text{N}}{\text{m}}$ and $16 \frac{\text{N}}{\text{m}}$ respectively. If T_1 and T_2 are period of oscillations of springs A and B respectively then $\frac{T_1+T_2}{T_1-T_2}$ will be

Ans

1. 1:3

2. 3:1

3. 1:2

4. 2:1

Question Type : **MCQ**

Question ID : **37135117173**

Option 1 ID : **37135168692**

Option 2 ID : **37135168691**

Option 3 ID : **37135168689**

Option 4 ID : **37135168690**

Status : **Answered**

Chosen Option : **3**

Q.21 A child starts running from rest along a circular track of radius 'r' with constant tangential acceleration 'a'. After time 't' he feels that slipping of shoes on the ground has started. The coefficient of friction between shoes and the ground is [g = acceleration due to gravity]

Ans

1.
$$\frac{[a^2 t^2 + a^4 r^4]}{rg}$$

2.
$$\frac{[a^4 t^4 + a^2 r^2]}{rg}$$

3.
$$\frac{[a^4 t^4 + a^2 r^2]^{\frac{1}{2}}}{gr}$$

4.
$$\frac{[a^4 t^4 - a^2 r^2]^{\frac{1}{2}}}{rg}$$

Question Type : MCQ

Question ID : 37135117191

Option 1 ID : 37135168762

Option 2 ID : 37135168761

Option 3 ID : 37135168763

Option 4 ID : 37135168764

Status : Answered

Chosen Option : 2

Q.22 A steel wire of length ' l ' has a magnetic moment ' M '. It is then bent into a semi-circular arc. The new magnetic moment is

Ans

✓ 1. $2M / \pi$

✗ 2. M

✗ 3. $M \times l$

✗ 4. M / l

Question Type : MCQ

Question ID : 37135117162

Option 1 ID : 37135168646

Option 2 ID : 37135168645

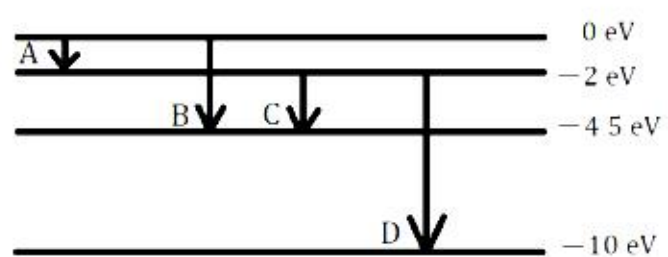
Option 3 ID : 37135168648

Option 4 ID : 37135168647

Status : Answered

Chosen Option : 1

Q.23 The energy levels with transitions for the atom are shown. The transitions corresponding to emission of radiation of maximum and minimum wavelength are respectively



Ans

✓ 1. A, D

✗ 2. B, C

✗ 3. C, D

✗ 4. A, C

Question Type : MCQ

Question ID : 37135117154

Option 1 ID : 37135168615

Option 2 ID : 37135168616

Option 3 ID : 37135168614

Option 4 ID : 37135168613

Status : Answered

Chosen Option : 3

Q.24 In a system of two particles of masses 'm₁' and 'm₂', the first particle is moved by a distance 'd' towards the centre of mass. To keep the centre of mass unchanged, the second particle will have to be moved by a distance

Ans  1.

$\frac{m_1}{m_2} d$, towards the centre of mass.

 2.

$\frac{m_2}{m_1} d$, away from the centre of mass.

 3.

$\frac{m_2}{m_1} d$, towards the centre of mass.

 4.

$\frac{m_1}{m_2} d$, away from the centre of mass.

Question Type : MCQ

Question ID : 37135117172

Option 1 ID : 37135168687

Option 2 ID : 37135168686

Option 3 ID : 37135168685

Option 4 ID : 37135168688

Status : Answered

Chosen Option : 2

Q.25

An object is clearly seen through an astronomical telescope of length 50 cm. The focal lengths of its objective and eyepiece respectively, can be

Ans

1. 5 cm and 45 cm

2.

45 cm and -5 cm

3. -45 cm and -5 cm

4. 45 cm and 5 cm

Question Type : MCQ

Question ID : 37135117192

Option 1 ID : 37135168768

Option 2 ID : 37135168765

Option 3 ID : 37135168766

Option 4 ID : 37135168767

Status : Answered

Chosen Option : 4

Q.26 'N' number of balls of mass 'm' kg moving along positive direction of x - axis, strike a wall per second and return elastically. The velocity of each ball is 'u' m/s. The force exerted on the wall by the balls in newton, is

Ans

1. mNu

2. 0

3. $2mNu$

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

Question Type : **MCQ**

Question ID : **37135117177**

Option 1 ID : **37135168707**

Option 2 ID : **37135168705**

Option 3 ID : **37135168708**

Option 4 ID : **37135168706**

Status : **Answered**

Chosen Option : **2**

Q.27

What is the angle between resultant of $\vec{A} + \vec{B}$ and $\vec{A} \times \vec{B}$?

Ans

1. π rad

2. 0°

3. $\frac{\pi}{2}$ rad

4. $\frac{\pi}{4}$ rad

Question Type : MCQ

Question ID : 37135117157

Option 1 ID : 37135168628

Option 2 ID : 37135168625

Option 3 ID : 37135168627

Option 4 ID : 37135168626

Status : Answered

Chosen Option : 3

Q.28

The angle subtended by the vector $\vec{A} = 4\hat{i} + 3\hat{j} + 12\hat{k}$ with the x - axis is

Ans

✗ 1. $\sin^{-1} \left(\frac{4}{13} \right)$

✗ 2. $\cos^{-1} \left(\frac{3}{13} \right)$

✓ 3. $\cos^{-1} \left(\frac{4}{13} \right)$

✗ 4. $\sin^{-1} \left(\frac{3}{13} \right)$

Question Type : MCQ

Question ID : 37135117167

Option 1 ID : 37135168666

Option 2 ID : 37135168668

Option 3 ID : 37135168667

Option 4 ID : 37135168665

Status : Answered

Chosen Option : 3

Q.29

Earth has mass ' M_1 ' and Radius ' R_1 '. Moon has mass ' M_2 ' and radius ' R_2 '. Distance between their centres is ' r '. A body of mass ' M ' is placed on the line joining them at a distance $\frac{r}{3}$ from centre of the earth. To project the mass ' M ' to escape to infinity, the minimum speed required is

Ans

✗ 1. $\left[\frac{6G}{r} \left(M_1 - \frac{M_2}{2} \right) \right]^{\frac{1}{2}}$

✓ 2. $\left[\frac{6G}{r} \left(M_1 + \frac{M_2}{2} \right) \right]^{\frac{1}{2}}$

✗ 3. $\left[\frac{3G}{r} \left(M_1 + \frac{M_2}{2} \right) \right]^{\frac{1}{2}}$

✗ 4. $\left[\frac{3G}{r} \left(M_1 - \frac{M_2}{2} \right) \right]^{\frac{1}{2}}$

Question Type : MCQ

Question ID : 37135117170

Option 1 ID : 37135168680

Option 2 ID : 37135168678

Option 3 ID : 37135168677

Option 4 ID : 37135168679

Status : Answered

Chosen Option : 2

Q.30

A body is moving along a circular track of radius 100 m with velocity 20 m/s. Its tangential acceleration is 3 m/s^2 , then its resultant acceleration will be

Ans

1. 3 m/s^2

2. 5 m/s^2

3. 4 m/s^2

4. 2 m/s^2

Question Type : **MCQ**

Question ID : **37135117161**

Option 1 ID : **37135168642**

Option 2 ID : **37135168644**

Option 3 ID : **37135168643**

Option 4 ID : **37135168641**

Status : **Answered**

Chosen Option : **2**

Q.31 The Brewster's angle for the glass-air interface is $(54.74)^\circ$. If a ray of light passing from air to glass strikes at an angle of incidence 45° , then the angle of refraction is

$$\left[\tan(54.74)^\circ = \sqrt{2}, \quad \sin 45^\circ = \frac{1}{\sqrt{2}} \right]$$

Ans

✓ 1. $\sin^{-1}(0.5)$

✗ 2. $\sin^{-1}(1)$

✗ 3. $\sin^{-1}(\sqrt{2})$

✗ 4. $\sin^{-1}\left(\frac{1}{\sqrt{2}}\right)$

Question Type : **MCQ**

Question ID : **37135117195**

Option 1 ID : **37135168778**

Option 2 ID : **37135168780**

Option 3 ID : **37135168777**

Option 4 ID : **37135168779**

Status : **Answered**

Chosen Option : **1**

Q.32 A tuning fork 'A' produces 5 beats per second with a tuning fork of frequency 480 Hz. When a little wax is stuck to a prong of fork A, the number of beats heard per second becomes 2. What is the frequency of tuning fork A before the wax is stuck to it?

Ans

✓^{1.} 485 Hz

✗^{2.} 478 Hz

✗^{3.} 475 Hz

✗^{4.} 482 Hz

Question Type : **MCQ**

Question ID : **37135117181**

Option 1 ID : **37135168724**

Option 2 ID : **37135168722**

Option 3 ID : **37135168721**

Option 4 ID : **37135168723**

Status : **Answered**

Chosen Option : **1**

Q.33

A transistor having $\alpha = 0.8$ is connected in common emitter configuration. When the base current changes by 6 mA, the change in collector current is

Ans

1. 12 mA

2. 1.5 mA

3. 24 mA

4. 0.66 mA

Question Type : **MCQ**

Question ID : **37135117164**

Option 1 ID : **37135168655**

Option 2 ID : **37135168654**

Option 3 ID : **37135168656**

Option 4 ID : **37135168653**

Status : **Answered**

Chosen Option : **2**

Q.34 A 10 m long wire of resistance $20\ \Omega$ is connected in series with a battery of e.m.f. 3 volt and a resistance of $10\ \Omega$. The potential gradient along the wire in volt/meter is

Ans

1. 0.02

2. 1.2

3. 0.10

4. 0.20

Question Type : **MCQ**

Question ID : **37135117193**

Option 1 ID : **37135168769**

Option 2 ID : **37135168772**

Option 3 ID : **37135168770**

Option 4 ID : **37135168771**

Status : **Answered**

Chosen Option : **4**

Q.35 Water rises upto a height 'h' in a capillary tube on the surface of the earth. The value of 'h' will increase if the experimental setup is kept in [g = acceleration due to gravity]

Ans  1.

a lift going upward with a certain acceleration.

 2.

a lift going down with acceleration $a < g$.

 3. accelerating train.

 4.

a satellite rotating close to earth.

Question Type : **MCQ**

Question ID : **37135117189**

Option 1 ID : **37135168753**

Option 2 ID : **37135168755**

Option 3 ID : **37135168754**

Option 4 ID : **37135168756**

Status : **Answered**

Chosen Option : **2**

Q.36 Let ' σ ' and ' b ' be Stefan's constant and Wien's constant respectively, then dimensions of ' σb ' are

Ans

1. $[L^1 M^{-1} T^{-3} K^{-3}]$

2. $[L^{-1} M^1 T^{-3} K^{-3}]$

3. $[L^1 M^1 T^3 K^{-3}]$

4. $[L^1 M^1 T^{-3} K^{-3}]$

Question Type : MCQ

Question ID : 37135117190

Option 1 ID : 37135168757

Option 2 ID : 37135168759

Option 3 ID : 37135168760

Option 4 ID : 37135168758

Status : Answered

Chosen Option : 4

Q.37 The root mean square velocity of molecules of a gas is 200 m/s. What will be the root mean square velocity of the molecules, if the molecular weight is doubled and the absolute temperature is halved?

Ans

1. 50 m/s

2. 100 m/s

3. 200 m/s

4. $\frac{100}{\sqrt{2}}$ m/s

Question Type : **MCQ**

Question ID : **37135117169**

Option 1 ID : **37135168673**

Option 2 ID : **37135168675**

Option 3 ID : **37135168676**

Option 4 ID : **37135168674**

Status : **Answered**

Chosen Option : **2**

Q.38

Two galvanometers 'A' and 'B' require currents of 4 mA and 7mA, respectively to produce the same deflection of 20 divisions. If ' S_A ' and ' S_B ' are their sensitivities, respectively, then

Ans

✓ 1. $S_A > S_B$

✗ 2. $S_A = S_B = \frac{4}{7}$

✗ 3. $S_B = \frac{7}{4} = S_A$

✗ 4. $S_A < S_B$

Question Type : MCQ

Question ID : 37135117183

Option 1 ID : 37135168732

Option 2 ID : 37135168731

Option 3 ID : 37135168729

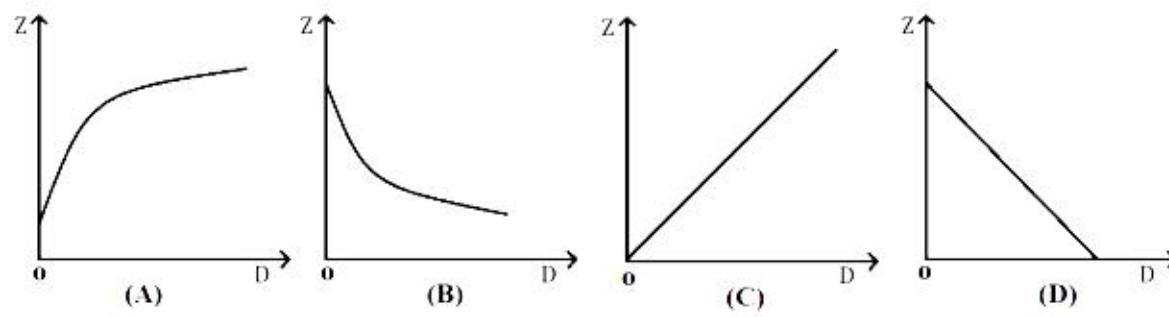
Option 4 ID : 37135168730

Status : Answered

Chosen Option : 1

Q.39

A graph is plotted between the fringe-width (z) and the distance (D) between the slit and eye-piece, keeping other adjustment same. The correct graph is



Ans

1. (B)

2. (A)

3. (C)

4. (D)

Question Type : MCQ

Question ID : 37135117160

Option 1 ID : 37135168638

Option 2 ID : 37135168637

Option 3 ID : 37135168639

Option 4 ID : 37135168640

Status : Answered

Chosen Option : 3

Q.40 Two cells having unknown e.m.f.s E_1 and E_2 ($E_1 > E_2$) are connected in potentiometer circuit so as to assist each other. The null point obtained is at 490 cm from the higher potential end. When cell E_2 is connected so as to oppose cell E_1 , the null point is obtained at 90 cm from the same end. The ratio of the e.m.f.s of two cells $\left(\frac{E_1}{E_2}\right)$ is

Ans

1. 0.689

2. 0.182

3. 5.33

4. 1.45

Question Type : **MCQ**

Question ID : **37135117156**

Option 1 ID : **37135168622**

Option 2 ID : **37135168621**

Option 3 ID : **37135168624**

Option 4 ID : **37135168623**

Status : **Answered**

Chosen Option : **4**

Q.41 If the surface tension of a soap solution is 3×10^{-2} N/m, then the work done in forming a soap film of 20 cm x 5 cm will be

Ans

1. 6×10^{-3} J

2. 6×10^{-4} J

3. 6×10^{-2} J

4. 6 J

Question Type : MCQ

Question ID : 37135117175

Option 1 ID : 37135168698

Option 2 ID : 37135168699

Option 3 ID : 37135168697

Option 4 ID : 37135168700

Status : Answered

Chosen Option : 2

Q.42

An A.C. circuit contains resistance of 12Ω and inductive reactance 5Ω . The phase angle between current and potential difference will be

Ans

✓ 1. $\cos^{-1}\left(\frac{12}{13}\right)$

✗ 2. $\sin^{-1}\left(\frac{12}{13}\right)$

✗ 3. $\cos^{-1}\left(\frac{5}{12}\right)$

✗ 4. $\sin^{-1}\left(\frac{5}{12}\right)$

Question Type : MCQ

Question ID : 37135117178

Option 1 ID : 37135168712

Option 2 ID : 37135168711

Option 3 ID : 37135168709

Option 4 ID : 37135168710

Status : Answered

Chosen Option : 1

Q.43 The escape velocity of a body from any planet whose mass is six times the mass of earth and radius is twice the radius of earth will be
(V_e = escape velocity of a body from the earth's surface)

Ans

✓ 1. $\sqrt{3} V_e$

✗ 2. $2V_e$

✗ 3. $\frac{3}{2} V_e$

✗ 4. $2\sqrt{2} V_e$

Question Type : **MCQ**

Question ID : **37135117163**

Option 1 ID : **37135168649**

Option 2 ID : **37135168652**

Option 3 ID : **37135168650**

Option 4 ID : **37135168651**

Status : **Answered**

Chosen Option : **1**

Q.44 A carrier wave of peak voltage 16 volt is used to transmit a signal. If the modulation index is 75 %, the peak voltage of the modulating signal is

Ans

1. 6 volt

2. 24 volt

3. 18 volt

4. 12 volt

Question Type : **MCQ**

Question ID : **37135117200**

Option 1 ID : **37135168797**

Option 2 ID : **37135168800**

Option 3 ID : **37135168799**

Option 4 ID : **37135168798**

Status : **Answered**

Chosen Option : **2**

Q.45 A domain in a ferromagnetic substance is in the form of a cube of side $1 \mu\text{m}$. If it contains 8×10^{10} atoms and each atomic dipole has a dipole moment of $9 \times 10^{-24} \text{ A}\cdot\text{m}$, then the magnetisation of the domain is

Ans

1. $7.2 \times 10^9 \text{ Am}^{-1}$.

2. $7.2 \times 10^5 \text{ Am}^{-1}$.

3. $7.2 \times 10^{12} \text{ Am}^{-1}$.

4. $7.2 \times 10^3 \text{ Am}^{-1}$.

Question Type : **MCQ**

Question ID : **37135117176**

Option 1 ID : **37135168703**

Option 2 ID : **37135168701**

Option 3 ID : **37135168704**

Option 4 ID : **37135168702**

Status : **Answered**

Chosen Option : **2**

Q.46 A rope is wound around a solid cylinder of mass 1 kg and radius 0.4 m. What is the angular acceleration of cylinder, if the rope is pulled with a force of 25 N?
(cylinder is rotating about its own axis)

Ans

1. 50 rad/s²

2. 125 rad/s²

3. 10 rad/s²

4. 1 rad/s²

Question Type : MCQ

Question ID : 37135117179

Option 1 ID : 37135168715

Option 2 ID : 37135168716

Option 3 ID : 37135168714

Option 4 ID : 37135168713

Status : Answered

Chosen Option : 4

Q.47 Using Bohr's model, the orbital period of electron in hydrogen atom in n^{th} orbit is
(ϵ_0 = permittivity of free space, h = Planck's constant, m = mass of electron,
 e = electronic charge)

Ans

1. $\frac{8\epsilon_0^2 n^3 h^3}{me^4}$

2. $\frac{2\epsilon_0^2 n^3 h^3}{me^4}$

3. $\frac{2\epsilon_0 n^2 h^2}{me^4}$

4. $\frac{4\epsilon_0^2 n^3 h^3}{me^4}$

Question Type : MCQ

Question ID : 37135117171

Option 1 ID : 37135168684

Option 2 ID : 37135168681

Option 3 ID : 37135168682

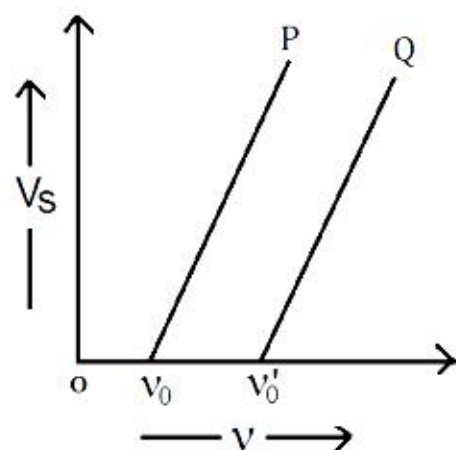
Option 4 ID : 37135168683

Status : Answered

Chosen Option : 1

Q.48

The graph of stopping potential (V_s) against frequency (ν) of incident radiation is plotted for two different metals 'P' and 'Q' as shown in the graph. ϕ_P and ϕ_Q are work functions of P and Q respectively, then



Ans

1. $\phi_P = \phi_Q$

2. $\nu'_0 < \nu_0$

3. $\phi_P < \phi_Q$

4. $\phi_P > \phi_Q$

Question Type : MCQ

Question ID : 37135117186

Option 1 ID : 37135168741

Option 2 ID : 37135168744

Option 3 ID : 37135168742

Option 4 ID : 37135168743

Status : Answered

Chosen Option : 2

Q.49 At the poles, a stretched wire of a given length vibrates in unison with a tuning fork. At the equator, for same setting to produce resonance with same fork, the vibrating length of wire

Ans

1. should be increased.

2.

should be 3 times the original length.

3. should be same.

4. should be decreased.

Question Type : **MCQ**

Question ID : **37135117184**

Option 1 ID : **37135168734**

Option 2 ID : **37135168736**

Option 3 ID : **37135168735**

Option 4 ID : **37135168733**

Status : **Answered**

Chosen Option : **2**

Q.50 A bob of a simple pendulum has mass 'm' and is oscillating with an amplitude 'a'.
If the length of the pendulum is 'L' then the maximum tension in the string is
[cos 0° = 1, g = acceleration due to gravity]

Ans

✓^{1.} $mg \left[1 + \left(\frac{a}{L} \right)^2 \right]$

✗^{2.} $mg \left[1 - \left(\frac{L}{a} \right)^2 \right]$

✗^{3.} $mg \left[1 + \left(\frac{L}{a} \right)^2 \right]$

✗^{4.} $mg \left[1 - \left(\frac{a}{L} \right)^2 \right]$

Question Type : **MCQ**

Question ID : **37135117153**

Option 1 ID : **37135168612**

Option 2 ID : **37135168610**

Option 3 ID : **37135168609**

Option 4 ID : **37135168611**

Status : **Answered**

Chosen Option : **1**

Section : Chemistry

Q.1 A first order reaction is 25 % completed in 40 minutes. What is the rate constant k for the reaction?

Ans

✓ 1.
$$\frac{2.303 \times \log 1.33}{40}$$

✗ 2.
$$2 \cdot 303 \times \log \frac{4}{3}$$

✗ 3.
$$\frac{2.303}{40} \times \log \frac{1}{4}$$

✗ 4.
$$\frac{2.303 \times \log 4}{40 \times 3}$$

Question Type : MCQ

Question ID : 37135117216

Option 1 ID : 37135168864

Option 2 ID : 37135168863

Option 3 ID : 37135168861

Option 4 ID : 37135168862

Status : Answered

Chosen Option : 1

Q.2 For first order reaction the concentration of reactant decreases from 0.2 to 0.1 M in 100 minutes. What is the rate constant of the reaction?

Ans

1. 6.93 min^{-1}

2. 69.3 min^{-1}

3. $6.93 \times 10^{-3} \text{ min}^{-1}$

4. 144.3 min^{-1}

Question Type : MCQ

Question ID : 37135117220

Option 1 ID : 37135168880

Option 2 ID : 37135168877

Option 3 ID : 37135168879

Option 4 ID : 37135168878

Status : Answered

Chosen Option : 3

Q.3 Which carbon atoms of α -D-glucopyranose and β -D-Fructofuranose respectively are linked together to form glycosidic linkage in sucrose?

Ans  1.

C-2 of α -D-glucopyranose and C-3 of β -D-Fructofuranose

 2.

C-1 of α -D-glucopyranose and C-6 of β -D-Fructofuranose

 3.

C-2 of α -D-glucopyranose and C-2 of β -D-Fructofuranose

 4.

C-1 of α -D-glucopyranose and C-2 of β -D-Fructofuranose

Question Type : MCQ

Question ID : 37135117218

Option 1 ID : 37135168871

Option 2 ID : 37135168872

Option 3 ID : 37135168869

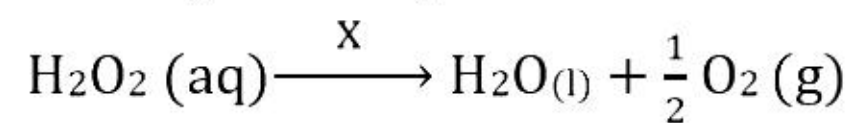
Option 4 ID : 37135168870

Status : Answered

Chosen Option : 4

Q.4

Identify the enzyme 'X' in the following reaction.



Ans

1. amylase

2. ferroxidase

3. Catalase

4. carbonic anhydrase

Question Type : MCQ

Question ID : 37135117224

Option 1 ID : 37135168894

Option 2 ID : 37135168895

Option 3 ID : 37135168893

Option 4 ID : 37135168896

Status : Answered

Chosen Option : 4

Q.5

Identify tranquilizer from the following?

Ans

1. Prontosil

2. Aspirin

3. Meprobamate

4. Salvarsan

Question Type : **MCQ**

Question ID : **37135117243**

Option 1 ID : **37135168971**

Option 2 ID : **37135168969**

Option 3 ID : **37135168972**

Option 4 ID : **37135168970**

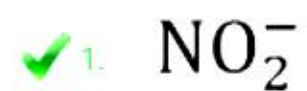
Status : **Answered**

Chosen Option : **3**

Q.6

Which among the following is an ambidentate ligand?

Ans



Question Type : **MCQ**

Question ID : **37135117232**

Option 1 ID : **37135168927**

Option 2 ID : **37135168925**

Option 3 ID : **37135168926**

Option 4 ID : **37135168928**

Status : **Answered**

Chosen Option : **1**

Q.7 Which of the following is correct decreasing order of the repulsive interaction of electron pairs in a molecule?

Ans  1.

lone pair-lone pair > lone pair-bond pair > bond pair-bond pair

 2.

bond pair-bond pair = bond pair-lone pair > lone pair-lone pair

 3.

lone pair-bond pair > lone pair-lone pair > bond pair-bond pair

 4.

bond pair-bond pair > lone pair-bond pair > lone pair-lone pair

Question Type : **MCQ**

Question ID : **37135117235**

Option 1 ID : **37135168939**

Option 2 ID : **37135168940**

Option 3 ID : **37135168938**

Option 4 ID : **37135168937**

Status : **Answered**

Chosen Option : **1**

Q.8

If boiling point of urea solution is 100.18°C and k_b for water is $0.512 \text{ K kg mol}^{-1}$, molality of solution is? (Boiling point of water = 100°C)

Ans

1. 0.25 mol kg^{-1}

2. 0.6 mol kg^{-1}

3. 0.45 mol kg^{-1}

4. 0.35 mol kg^{-1}

Question Type : MCQ

Question ID : 37135117234

Option 1 ID : 37135168933

Option 2 ID : 37135168936

Option 3 ID : 37135168935

Option 4 ID : 37135168934

Status : Answered

Chosen Option : 4

Q.9

What is the unit of viscosity?

Ans

1. Kg s^{-1}

2. Nsm^{-2}

3. Kg s^2

4. Nm^{-1}

Question Type : MCQ

Question ID : 37135117213

Option 1 ID : 37135168851

Option 2 ID : 37135168849

Option 3 ID : 37135168852

Option 4 ID : 37135168850

Status : Answered

Chosen Option : 2

Q.10 Which of the following 0.10 m aqueous solutions will have maximum ΔT_f value?

Ans

✓ 1. $\text{Al}_2(\text{SO}_4)_3$

✗ 2. KI

✗ 3. $\text{C}_{12}\text{H}_{22}\text{O}_{11}$

✗ 4. $\text{NH}_2\text{-CO-NH}_2$

Question Type : MCQ

Question ID : 37135117223

Option 1 ID : 37135168891

Option 2 ID : 37135168889

Option 3 ID : 37135168890

Option 4 ID : 37135168892

Status : Answered

Chosen Option : 1

Q.11

Which of the following molecules has a central atom with complete octet?

Ans

- ✓ 1. Methane
- ✗ 2. Sulphur hexafluoride
- ✗ 3. Aluminium chloride
- ✗ 4. Boron trifluoride

Question Type : **MCQ**

Question ID : **37135117231**

Option 1 ID : **37135168924**

Option 2 ID : **37135168922**

Option 3 ID : **37135168923**

Option 4 ID : **37135168921**

Status : **Answered**

Chosen Option : **1**

Q.12

What is the percentage of unoccupied space in fcc unit cell?

Ans

1. 74 %

2. 26 %

3. 68 %

4. 32 %

Question Type : MCQ

Question ID : 37135117210

Option 1 ID : 37135168837

Option 2 ID : 37135168838

Option 3 ID : 37135168839

Option 4 ID : 37135168840

Status : Answered

Chosen Option : 1

Q.13 What is the range of number of carbon atoms in alkanes found in paraffin wax?

Ans

✓ 1. C₂₁ to C₃₀

✗ 2. C₁₇ to C₁₈

✗ 3. C₁₉ to C₂₀

✗ 4. C₆ to C₈

Question Type : MCQ

Question ID : 37135117211

Option 1 ID : 37135168843

Option 2 ID : 37135168841

Option 3 ID : 37135168844

Option 4 ID : 37135168842

Status : Answered

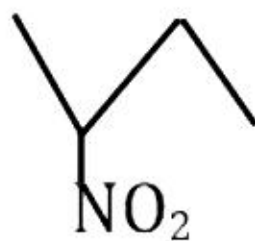
Chosen Option : 1

Q.14

Which of the following compounds does NOT react with bromine in alkaline medium?

Ans

X 1.



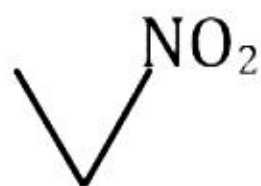
✓ 2.



X 3.



X 4.



Question Type : MCQ

Question ID : 37135117205

Option 1 ID : 37135168820

Option 2 ID : 37135168819

Option 3 ID : 37135168817

Option 4 ID : 37135168818

Status : Answered

Chosen Option : 2

Q.15 Which of the following compounds is obtained when phenol react with bromine water?

Ans

✓ 1. 2,4,6-tribromophenol

✗ 2. 4-Bromophenol

✗ 3. 2-Bromophenol

✗ 4. 3-Bromophenol

Question Type : MCQ

Question ID : 37135117209

Option 1 ID : 37135168836

Option 2 ID : 37135168835

Option 3 ID : 37135168833

Option 4 ID : 37135168834

Status : Answered

Chosen Option : 1

Q.16 Number of electrons involved in the reaction when 1 faraday of electricity is passed through an electrolytic solution is?

Ans

✗ 1. 8×10^{16}

✗ 2. 96500

✗ 3. 12×10^{46}

✓ 4. 6.022×10^{23}

Question Type : MCQ

Question ID : 37135117207

Option 1 ID : 37135168825

Option 2 ID : 37135168828

Option 3 ID : 37135168826

Option 4 ID : 37135168827

Status : Answered

Chosen Option : 4

Q.17

What is the highest oxidation state possessed by phosphorus in its oxyacids?

Ans

1. + 6

2. + 4

3. + 3

4. + 5

Question Type : MCQ

Question ID : 37135117237

Option 1 ID : 37135168948

Option 2 ID : 37135168946

Option 3 ID : 37135168945

Option 4 ID : 37135168947

Status : Answered

Chosen Option : 4

Q.18

Identify the number of donor groups present in EDTA.

Ans

1. Two

2. Three

3. Six

4. Four

Question Type : **MCQ**

Question ID : **37135117214**

Option 1 ID : **37135168853**

Option 2 ID : **37135168854**

Option 3 ID : **37135168856**

Option 4 ID : **37135168855**

Status : **Answered**

Chosen Option : **3**

Q.19

How many hydrogen atoms are surrounding each oxygen atom in structure of ice?

Ans

1. 2

2. 4

3. 3

4. 1

Question Type : MCQ

Question ID : 37135117241

Option 1 ID : 37135168962

Option 2 ID : 37135168964

Option 3 ID : 37135168963

Option 4 ID : 37135168961

Status : Answered

Chosen Option : 3

Q.20 Which of the following amines is most basic in nature in aqueous phase?

Ans

- 1. Ammonia
- 2. Trimethylamine
- 3. Methylamine
- 4. Dimethylamine

Question Type : MCQ

Question ID : 37135117247

Option 1 ID : 37135168988

Option 2 ID : 37135168987

Option 3 ID : 37135168985

Option 4 ID : 37135168986

Status : Answered

Chosen Option : 4

Q.21 How many faradays of electricity is required to produce 4.8 g of Mg at cathode in the electrolysis of molten MgCl_2 ? (Molar mass of Mg = 24 g/mol)

Ans

✓ 1. 0.4 F

✗ 2. 4 F

✗ 3. 10 F

✗ 4. 1 F

Question Type : MCQ

Question ID : 37135117201

Option 1 ID : 37135168804

Option 2 ID : 37135168802

Option 3 ID : 37135168801

Option 4 ID : 37135168803

Status : Answered

Chosen Option : 1

Q.22 What is the name of reaction involving replacement of diazonium group by chloride using cuprous (I) salt?

Ans

- 1. Wolff-Kishner reduction
- 2. Friedel Craft's reaction
- 3. Sandmeyer's reaction
- 4. Balz Schiemann reaction

Question Type : MCQ

Question ID : 37135117208

Option 1 ID : 37135168832

Option 2 ID : 37135168831

Option 3 ID : 37135168830

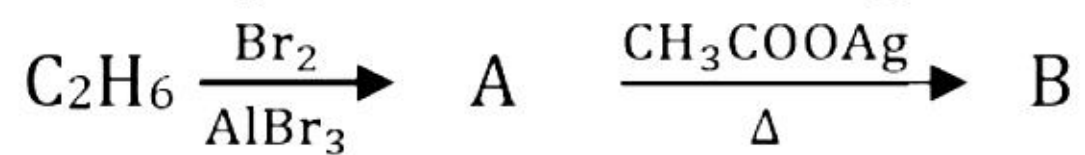
Option 4 ID : 37135168829

Status : Answered

Chosen Option : 3

Q.23

Identify 'B' in the following reaction



Ans



Question Type : MCQ

Question ID : 37135117202

Option 1 ID : 37135168806

Option 2 ID : 37135168805

Option 3 ID : 37135168808

Option 4 ID : 37135168807

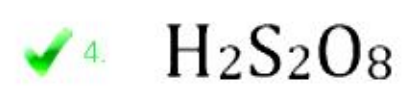
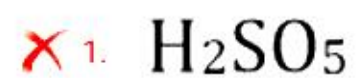
Status : Answered

Chosen Option : 2

Q.24

Which of the following molecular formula represents Marshall's acid?

Ans



Question Type : MCQ

Question ID : 37135117246

Option 1 ID : 37135168981

Option 2 ID : 37135168984

Option 3 ID : 37135168982

Option 4 ID : 37135168983

Status : Answered

Chosen Option : 1

Q.25

Which of the following compounds reacts with ammonia to form urotropine?

Ans

1. Ethanal

2. Methanal

3. Propanone

4. Propanal

Question Type : MCQ

Question ID : 37135117228

Option 1 ID : 37135168910

Option 2 ID : 37135168909

Option 3 ID : 37135168912

Option 4 ID : 37135168911

Status : Answered

Chosen Option : 2

Q.26

For the reaction,



Ans

1. $\Delta U + RT$

2. $\Delta U + 2RT$

3. $\Delta U - RT$

4. $\Delta U - 2RT$

Question Type : MCQ

Question ID : 37135117240

Option 1 ID : 37135168959

Option 2 ID : 37135168957

Option 3 ID : 37135168960

Option 4 ID : 37135168958

Status : Answered

Chosen Option : 4

Q.27

Which of the following compound is highly reactive towards HCN?

Ans

1. $\text{C}_6\text{H}_5\text{-CHO}$

2. H-CHO

3. $\text{CH}_3\text{-CO-CH}_3$

4. $\text{CH}_3\text{-CHO}$

Question Type : **MCQ**

Question ID : **37135117239**

Option 1 ID : **37135168955**

Option 2 ID : **37135168953**

Option 3 ID : **37135168956**

Option 4 ID : **37135168954**

Status : **Answered**

Chosen Option : **1**

Q.28 Which of the following pairs of monomers is used for the preparation of dextran?

Ans 1.

3-Hydroxy butanoic acid and 3-hydroxy pentanoic acid

2.

Glycine and ω -amino caproic acid

3. Lactic acid and glycollic acid

4. Isobutylene and Isoprene

Question Type : **MCQ**

Question ID : **37135117230**

Option 1 ID : **37135168918**

Option 2 ID : **37135168919**

Option 3 ID : **37135168917**

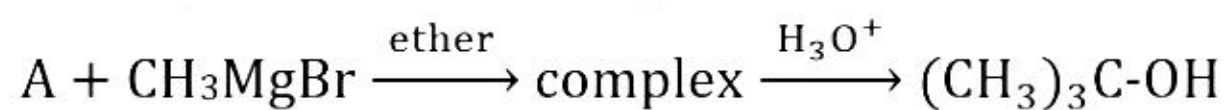
Option 4 ID : **37135168920**

Status : **Answered**

Chosen Option : **3**

Q.29

Identify A in the following reaction



Ans

- 1. Acetaldehyde
- 2. Propionaldehyde
- 3. Acetyl chloride
- 4. Acetone

Question Type : MCQ

Question ID : 37135117222

Option 1 ID : 37135168885

Option 2 ID : 37135168888

Option 3 ID : 37135168887

Option 4 ID : 37135168886

Status : Answered

Chosen Option : 4

Q.30

The vapour pressure of solvent decreases by 10 mm Hg if mole fraction of non volatile solute is 0.2 Calculate vapour pressure of solvent.

Ans

✓_{1.} 50 mm of Hg

✗_{2.} 70 mm of Hg

✗_{3.} 40 mm of Hg

✗_{4.} 60 mm of Hg

Question Type : MCQ

Question ID : 37135117227

Option 1 ID : 37135168906

Option 2 ID : 37135168908

Option 3 ID : 37135168905

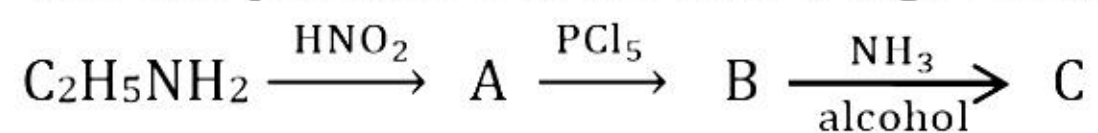
Option 4 ID : 37135168907

Status : Answered

Chosen Option : 1

Q.31

The end product C of the following reaction is



Ans

- 1. Ethanol
- 2. Ethanamine
- 3. Chloroethane
- 4. Nitroethane

Question Type : MCQ

Question ID : 37135117244

Option 1 ID : 37135168976

Option 2 ID : 37135168975

Option 3 ID : 37135168974

Option 4 ID : 37135168973

Status : Answered

Chosen Option : 2

Q.32 Which reagent among the following is used to confirm presence of aldehydic carbonyl group in glucose?

Ans

1. Acetic anhydride

2. Dilute Nitric acid

3. Bromine water

4. Hydroxylamine

Question Type : MCQ

Question ID : 37135117212

Option 1 ID : 37135168848

Option 2 ID : 37135168847

Option 3 ID : 37135168846

Option 4 ID : 37135168845

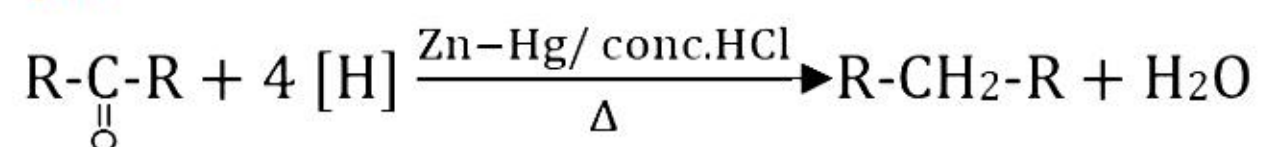
Status : Answered

Chosen Option : 3

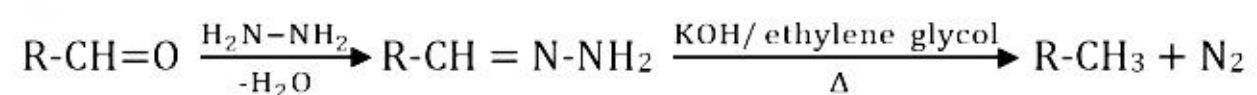
Q.33

Which of the following is a Stephen reaction?

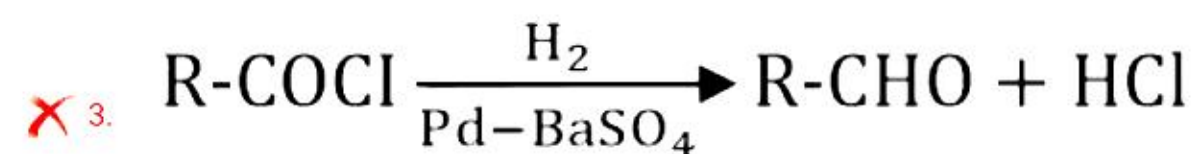
Ans 1.



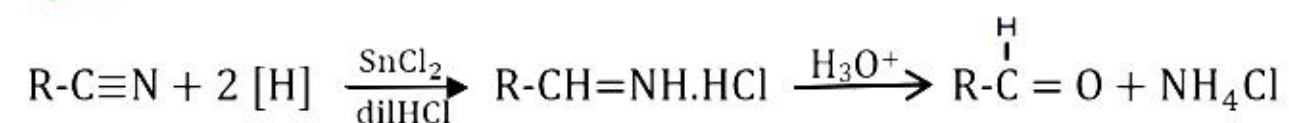
2.



3.



4.



Question Type : MCQ

Question ID : 37135117238

Option 1 ID : 37135168949

Option 2 ID : 37135168951

Option 3 ID : 37135168952

Option 4 ID : 37135168950

Status : Answered

Chosen Option : 4

Q.34 Which among the following sets of elements is present in chalcopyrite?

Ans

1. Fe, S

2. Al, O

3. Al, Fe, O

4. Cu, Fe, S

Question Type : MCQ

Question ID : 37135117233

Option 1 ID : 37135168932

Option 2 ID : 37135168931

Option 3 ID : 37135168930

Option 4 ID : 37135168929

Status : Answered

Chosen Option : 4

Q.35 An element crystallises in fcc type of unit cell. The volume of one unit cell is $24.99 \times 10^{-24} \text{cm}^3$ and density of the element 7.2 g cm^{-3} . Calculate the number of unit cells in 36 g of pure sample of element?

Ans

1. 2.0×10^{23}

2. 2.0×10^{21}

3. 2.0×10^{24}

4. 1.25×10^{21}

Question Type : MCQ

Question ID : 37135117217

Option 1 ID : 37135168867

Option 2 ID : 37135168865

Option 3 ID : 37135168866

Option 4 ID : 37135168868

Status : Answered

Chosen Option : 3

Q.36

What is the oxidation number of Mn in MnO_4^{2-} ion?

Ans

1. -6

2. +6

3. -8

4. +8

Question Type : MCQ

Question ID : 37135117219

Option 1 ID : 37135168875

Option 2 ID : 37135168873

Option 3 ID : 37135168876

Option 4 ID : 37135168874

Status : Answered

Chosen Option : 2

Q.37

Identify the correct decreasing order of densities of d -block elements.

Ans

1. $\text{Fe} > \text{Ni} > \text{V} > \text{Cr}$

2. $\text{Cr} > \text{Fe} > \text{V} > \text{Ni}$

3. $\text{Ni} > \text{Fe} > \text{Cr} > \text{V}$

4. $\text{V} > \text{Cr} > \text{Fe} > \text{Ni}$

Question Type : MCQ

Question ID : 37135117225

Option 1 ID : 37135168900

Option 2 ID : 37135168898

Option 3 ID : 37135168899

Option 4 ID : 37135168897

Status : Answered

Chosen Option : 3

Q.38 When 6.0 g of graphite reacts with dihydrogen to give methane gas, 37.4 kJ of heat is liberated. What is standard enthalpy of formation of $\text{CH}_{4(g)}$?

Ans

1. $112.2 \text{ kJ mol}^{-1}$

2. $-74.8 \text{ kJ mol}^{-1}$

3. $-37.4 \text{ kJ mol}^{-1}$

4. $-112.2 \text{ kJ mol}^{-1}$

Question Type : MCQ

Question ID : 37135117245

Option 1 ID : 37135168979

Option 2 ID : 37135168978

Option 3 ID : 37135168977

Option 4 ID : 37135168980

Status : Answered

Chosen Option : 1

Q.39

Which among the following polymers is used for making handles of cooker?

Ans

1. Novolac

2. Bekelite

3. Acrilan

4. Melamine

Question Type : MCQ

Question ID : 37135117229

Option 1 ID : 37135168913

Option 2 ID : 37135168914

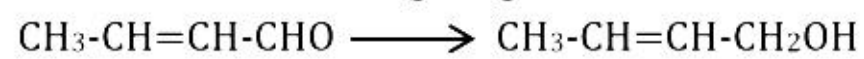
Option 3 ID : 37135168916

Option 4 ID : 37135168915

Status : Answered

Chosen Option : 2

Q.40 Which of the following reagents is used for the following conversion?



Ans

1. H_3O^+

2. Zn-Hg/HCl

3. H_2/Ni

4. LiAlH_4

Question Type : **MCQ**

Question ID : **37135117215**

Option 1 ID : **37135168858**

Option 2 ID : **37135168860**

Option 3 ID : **37135168857**

Option 4 ID : **37135168859**

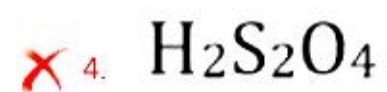
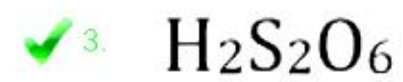
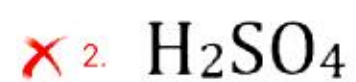
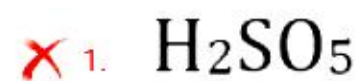
Status : **Answered**

Chosen Option : **4**

Q.41

Which of the following oxyacids of sulphur contain four S=O bonds?

Ans



Question Type : MCQ

Question ID : 37135117242

Option 1 ID : 37135168965

Option 2 ID : 37135168967

Option 3 ID : 37135168966

Option 4 ID : 37135168968

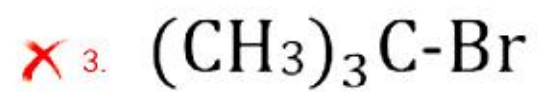
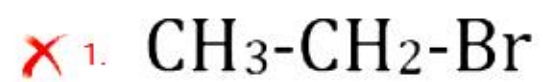
Status : Answered

Chosen Option : 4

Q.42

Which of the following is least reactive towards S_N1 reactions?

Ans



Question Type : MCQ

Question ID : 37135117203

Option 1 ID : 37135168810

Option 2 ID : 37135168809

Option 3 ID : 37135168811

Option 4 ID : 37135168812

Status : Answered

Chosen Option : 4

Q.43

Which among the following crystal lattices occupies all of the cubic holes by cations?

Ans

1. SrCl_2

2. CaF_2

3. CsCl

4. UO_2

Question Type : **MCQ**

Question ID : **37135117204**

Option 1 ID : **37135168815**

Option 2 ID : **37135168816**

Option 3 ID : **37135168814**

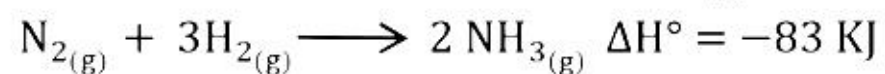
Option 4 ID : **37135168813**

Status : **Answered**

Chosen Option : **4**

Q.44

What is standard $\text{N}\equiv\text{N}$ bond enthalpy from following reaction?



($\Delta H^\circ_{(\text{H-H})} = 435 \text{ kJ}$, $\Delta H^\circ_{(\text{N-H})} = 389 \text{ kJ}$)

Ans

1. 435 kJ

2. 2334 kJ

3. 946 kJ

4. 1305 kJ

Question Type : MCQ

Question ID : 37135117248

Option 1 ID : 37135168989

Option 2 ID : 37135168992

Option 3 ID : 37135168990

Option 4 ID : 37135168991

Status : Answered

Chosen Option : 3

Q.45

What is the SI unit for electrochemical equivalent?

Ans

1. $J C^{-1}$

2. $Kg C^{-1}$

3. $Kg C$

4. $J S^{-1}$

Question Type : MCQ

Question ID : 37135117206

Option 1 ID : 37135168823

Option 2 ID : 37135168822

Option 3 ID : 37135168821

Option 4 ID : 37135168824

Status : Answered

Chosen Option : 4

Q.46 How many moles of gaseous oxygen at one atmosphere is considered for the reaction with element for plotting a graph in Ellingham diagram?

Ans

1. 2

2. 0.25

3. 0.5

4. 1

Question Type : MCQ

Question ID : 37135117226

Option 1 ID : 37135168902

Option 2 ID : 37135168904

Option 3 ID : 37135168903

Option 4 ID : 37135168901

Status : Answered

Chosen Option : 3

Q.47

Which of the following is NOT an example of antiseptic drug?

Ans

1. Hydrogen peroxide

2. Bithional

3. Cloroxyleneol

4. Sulphur dioxide

Question Type : **MCQ**

Question ID : **37135117236**

Option 1 ID : **37135168944**

Option 2 ID : **37135168943**

Option 3 ID : **37135168941**

Option 4 ID : **37135168942**

Status : **Answered**

Chosen Option : **1**

Q.48

Which mineral among the following contains Vanadium in it ?

Ans

1. Azurite

2. Malachite

3. Carnotite

4. Crocoisite

Question Type : **MCQ**

Question ID : **37135117221**

Option 1 ID : **37135168884**

Option 2 ID : **37135168883**

Option 3 ID : **37135168881**

Option 4 ID : **37135168882**

Status : **Answered**

Chosen Option : **4**

Q.49 The total number of electrons around the carbon atom of methyl free radical are

Ans

1. six

2. eight

3. seven

4. nine

Question Type : MCQ

Question ID : 37135117249

Option 1 ID : 37135168993

Option 2 ID : 37135168995

Option 3 ID : 37135168994

Option 4 ID : 37135168996

Status : Answered

Chosen Option : 3

Q.50

What is the formula of hydrolith?

Ans

1. MgH_2

2. CaH_2

3. BaH_2

4. BeH_2

Question Type : MCQ

Question ID : 37135117250

Option 1 ID : 37135168997

Option 2 ID : 37135168998

Option 3 ID : 37135169000

Option 4 ID : 37135168999

Status : Answered

Chosen Option : 4



Q.1

If A and B are supplementary angles, then $\sin^2 \frac{A}{2} + \sin^2 \frac{B}{2} =$

Ans

✓ 1.

✗ 2. $\frac{1}{3}$

✗ 3. 0

✗ 4. $\frac{1}{2}$

Question Type : MCQ

Question ID : 37135117257

Option 1 ID : 37135169025

Option 2 ID : 37135169027

Option 3 ID : 37135169026

Option 4 ID : 37135169028

Status : Answered

Chosen Option : 4

Q.2

$$\int_0^{\frac{\pi}{2}} \frac{\sqrt[7]{\sin x}}{\sqrt[7]{\sin x} + \sqrt[7]{\cos x}} dx =$$

Ans

1. $\frac{\pi}{2}$

2. $\frac{\pi}{3}$

3. $\frac{\pi}{4}$

4. $\frac{\pi}{8}$

Question Type : MCQ

Question ID : 37135117263

Option 1 ID : 37135169049

Option 2 ID : 37135169052

Option 3 ID : 37135169050

Option 4 ID : 37135169051

Status : Answered

Chosen Option : 3

Q.3

The cofactors of the elements of the first column of the matrix $A = \begin{bmatrix} 2 & 0 & -1 \\ 3 & 1 & 2 \\ -1 & 1 & 2 \end{bmatrix}$

are

Ans

1. 0, -7, 2

2. 0, -1, 1

3. 0, -8, 4

4. -1, 3, -2

Question Type : MCQ

Question ID : 37135117272

Option 1 ID : 37135169088

Option 2 ID : 37135169085

Option 3 ID : 37135169086

Option 4 ID : 37135169087

Status : Answered

Chosen Option : 2

Q.4

The quadratic equation whose roots are the numbers having arithmetic mean 34 and geometric mean 16 is

Ans

1. $x^2 + 68x - 256 = 0$

2. $x^2 - 68x - 256 = 0$

3. $x^2 - 68x + 256 = 0$

4. $x^2 + 68x + 256 = 0$

Question Type : MCQ

Question ID : 37135117299

Option 1 ID : 37135169196

Option 2 ID : 37135169195

Option 3 ID : 37135169193

Option 4 ID : 37135169194

Status : Answered

Chosen Option : 2

Q.5 The area of the triangle ABC is $10\sqrt{3}$ cm², angle B is 60° and its perimeter is 20 cm,
then $\ell(AC) =$

Ans

✓_{1.} 7 cm

✗_{2.} 8 cm

✗_{3.} 10 cm

✗_{4.} 5 cm

Question Type : MCQ

Question ID : 37135117291

Option 1 ID : 37135169162

Option 2 ID : 37135169163

Option 3 ID : 37135169164

Option 4 ID : 37135169161

Status : Answered

Chosen Option : 2

Q.6 The equation of the line passing through (1, 2, 3) and perpendicular to the lines

$$x - 1 = \frac{y+2}{2} = \frac{z+4}{4} \text{ and } \frac{x-1}{2} = \frac{y-2}{2} = z+3 \text{ is}$$

Ans

✓ 1. $\frac{x - 1}{6} = \frac{2 - y}{7} = \frac{z - 3}{2}$

✗ 2. $\frac{x - 1}{6} = \frac{y - 2}{7} = \frac{z - 3}{2}$

✗ 3. $\frac{x - 1}{4} = \frac{2 - y}{5} = \frac{z - 3}{2}$

✗ 4. $x - 1 = \frac{y - 2}{2} = \frac{z - 3}{4}$

Question Type : MCQ

Question ID : 37135117281

Option 1 ID : 37135169123

Option 2 ID : 37135169124

Option 3 ID : 37135169122

Option 4 ID : 37135169121

Status : Answered

Chosen Option : 1

Q.7 The area of the triangle formed by the lines joining vertex of the parabola $x^2 = 12y$ to the extremities of its latus rectum is

Ans

1. 38 sq. units

2. 18 sq. units

3. 12 sq. units

4. 28 sq. units

Question Type : MCQ

Question ID : 37135117287

Option 1 ID : 37135169148

Option 2 ID : 37135169146

Option 3 ID : 37135169145

Option 4 ID : 37135169147

Status : Answered

Chosen Option : 2

Q.8 If $R = \{(a, b) / b = a - 1, a \in Z, 5 < a < 9\}$, then the range of R is

Ans

1. $\{7, 8, 9\}$

2. $\{5, 6, 7\}$

3. $\{6, 7, 8\}$

4. $\{5, 6, 7, 8, 9\}$

Question Type : MCQ

Question ID : 37135117283

Option 1 ID : 37135169130

Option 2 ID : 37135169131

Option 3 ID : 37135169129

Option 4 ID : 37135169132

Status : Answered

Chosen Option : 2

Q.9 The odds in favour of getting sum multiple of 3, when pair of dice are thrown is

Ans

1. 4 : 5

2. 2 : 3

3. 1 : 2

4. 3 : 4

Question Type : MCQ

Question ID : 37135117280

Option 1 ID : 37135169120

Option 2 ID : 37135169118

Option 3 ID : 37135169117

Option 4 ID : 37135169119

Status : Answered

Chosen Option : 3



Q.10

$$\int \frac{dx}{x^2 + 4x + 13} =$$

Ans

✓_{1.} $\frac{1}{3} \tan^{-1} \left(\frac{x+2}{3} \right) + c$

✗_{2.} $\frac{1}{6} \log \left(\frac{x-1}{x+5} \right) + c$

✗_{3.} $\frac{1}{6} \tan^{-1} \left(\frac{x+2}{3} \right) + c$

✗_{4.} $3 \tan^{-1} \left(\frac{x+2}{3} \right) + c$

Question Type : MCQ

Question ID : 37135117300

Option 1 ID : 37135169197

Option 2 ID : 37135169199

Option 3 ID : 37135169198

Option 4 ID : 37135169200

Status : Answered

Chosen Option : 1

Q.11

If $2 \cos^2 \theta + 3 \cos \theta = 2$, then permissible value of $\cos \theta$ is

Ans

1. 0

2. 1

3. $\frac{1}{2}$

4. $-\frac{1}{2}$

Question Type : MCQ

Question ID : 37135117278

Option 1 ID : 37135169111

Option 2 ID : 37135169110

Option 3 ID : 37135169109

Option 4 ID : 37135169112

Status : Answered

Chosen Option : 2

Q.12

If $A = \begin{bmatrix} 4 & 5 \\ 2 & 1 \end{bmatrix}$ and $A^2 - 5A - 6I = 0$, then $A^{-1} =$

Ans

1. $\frac{1}{6} \begin{bmatrix} -1 & 5 \\ 2 & 4 \end{bmatrix}$

2. $\frac{1}{6} \begin{bmatrix} -1 & 5 \\ -2 & -4 \end{bmatrix}$

3. $\frac{1}{6} \begin{bmatrix} -1 & 5 \\ 2 & -4 \end{bmatrix}$

4. $\frac{1}{6} \begin{bmatrix} 1 & 5 \\ 2 & -4 \end{bmatrix}$

Question Type : MCQ

Question ID : 37135117251

Option 1 ID : 37135169004

Option 2 ID : 37135169003

Option 3 ID : 37135169001

Option 4 ID : 37135169002

Status : Answered

Chosen Option : 3

Q.13 If $\vec{a} = 3\hat{i} + \hat{j} - \hat{k}$, $\vec{b} = 2\hat{i} - \hat{j} + 7\hat{k}$ and $\vec{c} = 7\hat{i} - \hat{j} + 23\hat{k}$ are three vectors, then which of the following statement is true.

Ans

✓ 1. \vec{a} , \vec{b} and \vec{c} are non-coplanar.

✗ 2. \vec{a} , \vec{b} and \vec{c} are coplanar.

✗ 3.

\vec{a} , \vec{b} , \vec{c} are mutually perpendicular.

✗ 4. \vec{a} and \vec{b} are collinear.

Question Type : MCQ

Question ID : 37135117259

Option 1 ID : 37135169036

Option 2 ID : 37135169035

Option 3 ID : 37135169033

Option 4 ID : 37135169034

Status : Answered

Chosen Option : 1

Q.14 With usual notations, if the angles A, B, C of a ΔABC are in A.P. and $b : c = \sqrt{3} : \sqrt{2}$,

then $\angle A =$

Ans

1. 55°

2. 45°

3. 35°

4. 75°

Question Type : MCQ

Question ID : 37135117255

Option 1 ID : 37135169019

Option 2 ID : 37135169018

Option 3 ID : 37135169017

Option 4 ID : 37135169020

Status : Answered

Chosen Option : 1

Q.15

The order and degree of the differential equation $\left[1 + \frac{1}{\left(\frac{dy}{dx}\right)^2}\right]^{\frac{5}{3}} = 5 \frac{d^2y}{dx^2}$ are

respectively

Ans

✓ 1. 2, 3

✗ 2. 3, 2

✗ 3. 5, 2

✗ 4. 2, 5

Question Type : MCQ

Question ID : 37135117256

Option 1 ID : 37135169023

Option 2 ID : 37135169024

Option 3 ID : 37135169021

Option 4 ID : 37135169022

Status : Answered

Chosen Option : 1

Q.16

The range of the function $f(x) = \frac{x-3}{5-x}$, $x \neq 5$ is

Ans

1. $\mathbb{R} - \{1\}$

2. $\mathbb{R} - \{-5\}$

3. $\mathbb{R} - \{5\}$

4. $\mathbb{R} - \{-1\}$

Question Type : MCQ

Question ID : 37135117253

Option 1 ID : 37135169010

Option 2 ID : 37135169012

Option 3 ID : 37135169011

Option 4 ID : 37135169009

Status : Answered

Chosen Option : 3

Q.17

$$\text{If } x = a \sin t - b \cos t$$

$$y = a \cos t + b \sin t,$$

$$\text{then } y^3 \frac{d^2y}{dx^2} + x^2 + y^2 =$$

Ans

✓ 1. 0

✗ 2. 2

✗ 3. 1

✗ 4. -1

Question Type : MCQ

Question ID : 37135117284

Option 1 ID : 37135169133

Option 2 ID : 37135169136

Option 3 ID : 37135169134

Option 4 ID : 37135169135

Status : Answered

Chosen Option : 1

Q.18

The principal solutions of $\cot x = \sqrt{3}$ are

Ans

1. $\frac{\pi}{4}, \frac{5\pi}{4}$

2. $\frac{\pi}{6}, \frac{7\pi}{6}$

3. $\frac{\pi}{6}, \frac{5\pi}{6}$

4. $\frac{\pi}{3}, \frac{7\pi}{3}$

Question Type : MCQ

Question ID : 37135117252

Option 1 ID : 37135169007

Option 2 ID : 37135169005

Option 3 ID : 37135169008

Option 4 ID : 37135169006

Status : Answered

Chosen Option : 2

Q.19

The integrating factor of the differential equation $x \frac{dy}{dx} + y \log x = x^2$ is

Ans

1. $(\log x)^x$

2. $x^{\log x}$

3. $(\log x)^2$

4. $x^{\log(\sqrt{x})}$

Question Type : MCQ

Question ID : 37135117275

Option 1 ID : 37135169099

Option 2 ID : 37135169097

Option 3 ID : 37135169098

Option 4 ID : 37135169100

Status : Answered

Chosen Option : 4

Q.20 If the population grows at the rate of 8 % per year, then the time taken for the population to be doubled, is (Given $\log 2 = 0.6912$)

Ans

1. 6.8 years

2. 10.27 years

3. 8.64 years

4. 4.3 years

Question Type : MCQ

Question ID : 37135117282

Option 1 ID : 37135169128

Option 2 ID : 37135169127

Option 3 ID : 37135169126

Option 4 ID : 37135169125

Status : Answered

Chosen Option : 4

Q.21 The area of the square increases at the rate of $0.5 \text{ cm}^2/\text{sec}$. The rate at which its perimeter is increasing when the side of the square is 10 cm long, is

Ans

1. $0.3 \text{ cm}/\text{sec}$

2. $0.1 \text{ cm}/\text{sec}$

3. $0.2 \text{ cm}/\text{sec}$

4. $0.4 \text{ cm}/\text{sec}$

Question Type : MCQ

Question ID : 37135117279

Option 1 ID : 37135169115

Option 2 ID : 37135169113

Option 3 ID : 37135169114

Option 4 ID : 37135169116

Status : Answered

Chosen Option : 2

Q.22

The equation of a line passing through the point $(7, -4)$ and perpendicular to the line passing through the points $(2, 3)$ and $(1, -2)$ is

Ans

✓_{1.} $x + 5y + 13 = 0$

✗_{2.} $x - 5y - 13 = 0$

✗_{3.} $x - 2y - 15 = 0$

✗_{4.} $x + 2y + 1 = 0$

Question Type : MCQ

Question ID : 37135117271

Option 1 ID : 37135169083

Option 2 ID : 37135169082

Option 3 ID : 37135169084

Option 4 ID : 37135169081

Status : Answered

Chosen Option : 1

Q.23

$$\int \sin^{-1}x \, dx =$$

Ans

✓₁ $x \sin^{-1}x + \sqrt{1 - x^2} + c$

✗₂ $x \sin^{-1}x - \sqrt{1 - x^2} + c$

✗₃ $x \sin^{-1}x - \sqrt{1 + x^2} + c$

✗₄ $x \sin^{-1}x + \sqrt{1 + x^2} + c$

Question Type : MCQ

Question ID : 37135117267

Option 1 ID : 37135169067

Option 2 ID : 37135169066

Option 3 ID : 37135169068

Option 4 ID : 37135169065

Status : Answered

Chosen Option : 1

Q.24 The equation of a plane containing the point $(1, -1, 2)$ and perpendicular to the planes $2x + 3y - 2z = 5$ and $x + 2y - 3z = 8$ is

Ans

✓₁ $\vec{r} \cdot (5\hat{i} - 4\hat{j} - \hat{k}) = 7$

✗₂ $\vec{r} \cdot (5\hat{i} + 4\hat{j} + 2\hat{k}) = 5$

✗₃ $\vec{r} \cdot (4\hat{i} - 5\hat{j} + 3\hat{k}) = 15$

✗₄ $\vec{r} \cdot (5\hat{i} + 4\hat{j} - \hat{k}) = 5$

Question Type : MCQ

Question ID : 37135117293

Option 1 ID : 37135169171

Option 2 ID : 37135169169

Option 3 ID : 37135169172

Option 4 ID : 37135169170

Status : Answered

Chosen Option : 1

Q.25 The equation of the normal to the curve $2x^2 + y^2 = 12$ at the point (2, 2) is

Ans

1. $2x - y + 6 = 0$

2. $2x + y - 6 = 0$

3. $x + 2y + 2 = 0$

4. $x - 2y + 2 = 0$

Question Type : MCQ

Question ID : 37135117260

Option 1 ID : 37135169040

Option 2 ID : 37135169038

Option 3 ID : 37135169037

Option 4 ID : 37135169039

Status : Answered

Chosen Option : 4

Q.26

If $y = \sin^{-1} \left[\frac{\sqrt{1+x} + \sqrt{1-x}}{2} \right]$, then $\frac{dy}{dx} =$

Ans

✓ 1. $\left(-\frac{1}{2}\right) \frac{1}{\sqrt{1-x^2}}$

✗ 2. $\left(-\frac{1}{2}\right) \frac{1}{\sqrt{x^2-1}}$

✗ 3. $\left(\frac{1}{4}\right) \frac{1}{\sqrt{x^2-1}}$

✗ 4. $\left(\frac{1}{4}\right) \frac{1}{\sqrt{1-x^2}}$

Question Type : MCQ

Question ID : 37135117290

Option 1 ID : 37135169157

Option 2 ID : 37135169159

Option 3 ID : 37135169160

Option 4 ID : 37135169158

Status : Answered

Chosen Option : 1

Q.27 The c. d. f. $F(x)$ associated with p. d. f. $f(x) = 3(1 - 2x^2)$ if $0 < x < 1$
 $= 0$ otherwise

is $k\left(x - \frac{2x^3}{k}\right)$, then value of k is

Ans

✓ 1. 3

✗ 2. 1

✗ 3. $\frac{1}{3}$

✗ 4. $\frac{1}{6}$

Question Type : MCQ

Question ID : 37135117286

Option 1 ID : 37135169143

Option 2 ID : 37135169141

Option 3 ID : 37135169142

Option 4 ID : 37135169144

Status : Answered

Chosen Option : 1

Q.28

The area of the region bounded by the curve $y = \sin x$ between $x = -\pi$ and

$x = \frac{3\pi}{2}$ is

Ans

1. 2 (unit)^2

2. 5 (unit)^2

3. 3 (unit)^2

4. 1 (unit)^2

Question Type : MCQ

Question ID : 37135117268

Option 1 ID : 37135169071

Option 2 ID : 37135169069

Option 3 ID : 37135169070

Option 4 ID : 37135169072

Status : Answered

Chosen Option : 2

Q.29 If the sum of the mean and the variance of a binomial distribution for 5 trials is 1.8 ,
then $p =$

Ans

1. 0.4

2. 0.2

3. 0.8

4. 0.18

Question Type : **MCQ**

Question ID : **37135117292**

Option 1 ID : **37135169168**

Option 2 ID : **37135169166**

Option 3 ID : **37135169167**

Option 4 ID : **37135169165**

Status : **Answered**

Chosen Option : **2**

Q.30

$$\frac{1 - \sin\theta + \cos\theta}{1 - \sin\theta - \cos\theta} =$$

Ans

✗ 1. $\cot \frac{\theta}{2}$

✓ 2. $-\cot \frac{\theta}{2}$

✗ 3. $\tan \frac{\theta}{2}$

✗ 4. $-\tan \frac{\theta}{2}$

Question Type : MCQ

Question ID : 37135117264

Option 1 ID : 37135169055

Option 2 ID : 37135169056

Option 3 ID : 37135169053

Option 4 ID : 37135169054

Status : Answered

Chosen Option : 2

Q.31

$$\int_0^1 \tan^{-1} \left(\frac{2x - 1}{1 + x - x^2} \right) dx =$$

Ans

1.

2.

3.

4.

Question Type : MCQ

Question ID : 37135117270

Option 1 ID : 37135169077

Option 2 ID : 37135169078

Option 3 ID : 37135169080

Option 4 ID : 37135169079

Status : Answered

Chosen Option : 4

Q.32

$$\int \log x \cdot (\log x + 2) dx =$$

Ans

1. $e^x (\log x)^2 + c$

2. $(\log x)^2 + c$

3. $x (\log x)^2 + c$

4. $x \log x + c$

Question Type : MCQ

Question ID : 37135117261

Option 1 ID : 37135169044

Option 2 ID : 37135169043

Option 3 ID : 37135169041

Option 4 ID : 37135169042

Status : Answered

Chosen Option : 3

Q.33

A line makes angles α, β, γ with the co-ordinate axes and $\alpha + \beta = 90^\circ$, then $\gamma =$

Ans

1. 60°

2. 90°

3. 45°

4. 30°

Question Type : MCQ

Question ID : 37135117298

Option 1 ID : 37135169190

Option 2 ID : 37135169189

Option 3 ID : 37135169191

Option 4 ID : 37135169192

Status : Answered

Chosen Option : 2

Q.34

$$\int_0^1 \left(1 - \frac{x}{1!} + \frac{x^2}{2!} - \frac{x^3}{3!} + \dots \text{ upto } \infty\right) e^{2x} dx =$$

Ans

1. e^2

2. $e - 1$

3. $e + 1$

4. e

Question Type : MCQ

Question ID : 37135117258

Option 1 ID : 37135169032

Option 2 ID : 37135169031

Option 3 ID : 37135169030

Option 4 ID : 37135169029

Status : Answered

Chosen Option : 1

Q.35 The equation of the directrix of the parabola $3x^2 = 16y$ is

Ans

✓_{1.} $3y + 4 = 0$

✗_{2.} $3x + 4 = 0$

✗_{3.} $3y - 4 = 0$

✗_{4.} $3x - 4 = 0$

Question Type : MCQ

Question ID : 37135117294

Option 1 ID : 37135169174

Option 2 ID : 37135169175

Option 3 ID : 37135169173

Option 4 ID : 37135169176

Status : Answered

Chosen Option : 1

Q.36

If $x^2y^2 = \sin^{-1}\sqrt{x^2 + y^2} + \cos^{-1}\sqrt{x^2 + y^2}$, then $\frac{dy}{dx} =$

Ans

✓ 1. $\frac{-y}{x}$

✗ 2. $\frac{x}{y}$

✗ 3. $\frac{y}{x}$

✗ 4. $\frac{-x}{y}$

Question Type : MCQ

Question ID : 37135117295

Option 1 ID : 37135169180

Option 2 ID : 37135169177

Option 3 ID : 37135169178

Option 4 ID : 37135169179

Status : Answered

Chosen Option : 1

Q.37

If the equation $3x^2 + 10xy + 3y^2 + 16y + k = 0$ represents a pair of lines, then

the value of k is

Ans

1. -21

2. 21

3. 12

4. -12

Question Type : MCQ

Question ID : 37135117285

Option 1 ID : 37135169140

Option 2 ID : 37135169139

Option 3 ID : 37135169137

Option 4 ID : 37135169138

Status : Answered

Chosen Option : 4

Q.38

The general solution of the differential equation $(1 + y^2) + (x - e^{\tan^{-1}y}) \frac{dy}{dx} = 0$ is

Ans

1. $x \cdot e^{\tan^{-1}y} = \frac{(e^{\tan^{-1}x})^2}{2} + c$

2. $e^{\tan^{-1}y} = (e^{\tan^{-1}x})^2 + c$

3. $x \cdot e^{\tan^{-1}y} = \frac{(e^{\tan^{-1}y})^2}{2} + c$

4. $e^{\tan^{-1}y} = (e^{\tan^{-1}y})^2 + c$

Question Type : MCQ

Question ID : 37135117273

Option 1 ID : 37135169091

Option 2 ID : 37135169092

Option 3 ID : 37135169089

Option 4 ID : 37135169090

Status : Answered

Chosen Option : 3

Q.39

The maximum volume of a right circular cylinder if the sum of its radius and height is

6 m is

Ans

1. $16 \pi m^3$

2. $32 \pi m^3$

3. $4 \pi m^3$

4. $64 \pi m^3$

Question Type : MCQ

Question ID : 37135117254

Option 1 ID : 37135169013

Option 2 ID : 37135169015

Option 3 ID : 37135169016

Option 4 ID : 37135169014

Status : Answered

Chosen Option : 2

Q.40

If the slopes of the lines given by the equation $ax^2 + 2hxy + by^2 = 0$ are in the ratio 5 : 3, then the ratio $h^2 : ab =$

Ans

1. 5 : 3

2. 16 : 15

3. 3 : 5

4. 15 : 16

Question Type : MCQ

Question ID : 37135117276

Option 1 ID : 37135169101

Option 2 ID : 37135169102

Option 3 ID : 37135169103

Option 4 ID : 37135169104

Status : Answered

Chosen Option : 2

Q.41 The L. P. P. to maximize $Z = x + y$, subject to $x + y \leq 1$, $2x + 2y \geq 6$, $x \geq 0$, $y \geq 0$

has

Ans

✓ 1. no solution.

✗ 2. infinite solutions.

✗ 3. one solution.

✗ 4. two solutions.

Question Type : **MCQ**

Question ID : **37135117288**

Option 1 ID : **37135169149**

Option 2 ID : **37135169152**

Option 3 ID : **37135169150**

Option 4 ID : **37135169151**

Status : **Answered**

Chosen Option : **1**

Q.42

If $\vec{a}, \vec{b}, \vec{c}$ are non-coplanar vectors and $\vec{p} = \frac{\vec{b} \times \vec{c}}{[\vec{a} \ \vec{b} \ \vec{c}]}$, $\vec{q} = \frac{\vec{c} \times \vec{a}}{[\vec{a} \ \vec{b} \ \vec{c}]}$, $\vec{r} = \frac{\vec{a} \times \vec{b}}{[\vec{a} \ \vec{b} \ \vec{c}]}$,

then $\vec{a} \cdot \vec{p} + \vec{b} \cdot \vec{q} + \vec{c} \cdot \vec{r} =$

Ans

1. 2

2. 1

3. 0

4. 3

Question Type : MCQ

Question ID : 37135117274

Option 1 ID : 37135169095

Option 2 ID : 37135169094

Option 3 ID : 37135169093

Option 4 ID : 37135169096

Status : Answered

Chosen Option : 4

Q.43

The negation of the statement pattern $\sim p \vee (q \rightarrow \sim r)$ is

Ans

1. $p \rightarrow (q \wedge \sim r)$

2. $p \vee (q \wedge r)$

3. $p \wedge (q \wedge r)$

4. $\sim p \wedge (q \wedge r)$

Question Type : MCQ

Question ID : 37135117266

Option 1 ID : 37135169064

Option 2 ID : 37135169062

Option 3 ID : 37135169063

Option 4 ID : 37135169061

Status : Answered

Chosen Option : 3

Q.44

The statement pattern $p \wedge (q \vee \sim p)$ is equivalent to

Ans

✓_{1.} $p \wedge q$

✗_{2.} $p \rightarrow q$

✗_{3.} $q \wedge \sim p$

✗_{4.} $p \vee q$

Question Type : MCQ

Question ID : 37135117296

Option 1 ID : 37135169183

Option 2 ID : 37135169182

Option 3 ID : 37135169184

Option 4 ID : 37135169181

Status : Answered

Chosen Option : 1

Q.45

If $f(x) = \frac{1 - \sin x + \cos x}{1 + \sin x + \cos x}$, for $x \neq \pi$ is continuous at $x = \pi$, then $f(\pi) =$

Ans

✓ 1. -1

✗ 2. 2

✗ 3. 0

✗ 4. 1

Question Type : MCQ

Question ID : 37135117297

Option 1 ID : 37135169186

Option 2 ID : 37135169188

Option 3 ID : 37135169187

Option 4 ID : 37135169185

Status : Answered

Chosen Option : 1

Q.46

The point P lies on the line AB, where $A \equiv (2, 4, 5)$ and $B \equiv (1, 2, 3)$. If z co-ordinate of point P is 3, the its y co-ordinate is

Ans

✓_{1.} 2

✗_{2.} -2

✗_{3.} -3

✗_{4.} 3

Question Type : **MCQ**

Question ID : **37135117269**

Option 1 ID : **37135169073**

Option 2 ID : **37135169075**

Option 3 ID : **37135169076**

Option 4 ID : **37135169074**

Status : **Answered**

Chosen Option : **3**

Q.47

If X is a r. v. with c. d. f. $F(x)$ and its probability distribution is given by

$X = x$	-1.5	-0.5	0.5	1.5	2.5
$P(X = x)$	0.05	0.2	0.15	0.25	0.35

then, $F(1.5) - F(-0.5) =$

Ans

1. 0.2

2. 0.3

3. 0.1

4. 0.4

Question Type : MCQ

Question ID : 37135117289

Option 1 ID : 37135169154

Option 2 ID : 37135169155

Option 3 ID : 37135169153

Option 4 ID : 37135169156

Status : Answered

Chosen Option : 4

Q.48

The rate of disintegration of a radio active element at time t is proportional to its mass at that time. Then the time during which the original mass of 1.5gm. will disintegrate into its mass of 0.5gm. is proportional to

Ans

1. $\log 4$

2. $\log 5$

3. $\log 3$

4. $\log 2$

Question Type : MCQ

Question ID : 37135117277

Option 1 ID : 37135169105

Option 2 ID : 37135169107

Option 3 ID : 37135169106

Option 4 ID : 37135169108

Status : Answered

Chosen Option : 3

Q.49 \vec{a} and \vec{b} are non-collinear vectors. If $\vec{p} = (2x + 1)\vec{a} - \vec{b}$ and $\vec{q} = (x - 2)\vec{a} + \vec{b}$ are collinear vectors, then $x =$

Ans

1. -3

2. $\frac{1}{3}$

3. $-\frac{1}{3}$

4. 3

Question Type : MCQ

Question ID : 37135117262

Option 1 ID : 37135169048

Option 2 ID : 37135169045

Option 3 ID : 37135169046

Option 4 ID : 37135169047

Status : Answered

Chosen Option : 2

Q.50 The equations of planes parallel to the plane $x + 2y + 2z + 8 = 0$, which are at a distance of 2 units from the point $(1, 1, 2)$ are

Ans  1.

$$x + 2y + 2z - 13 = 0 \quad \text{or} \quad x + 2y + 2z - 1 = 0$$

 2.

$$x + 2y + 2z - 6 = 0 \quad \text{or} \quad x + 2y + 2z - 7 = 0$$

 3.

$$x + 2y + 2z + 3 = 0 \quad \text{or} \quad x + 2y + 2z - 5 = 0$$

 4.

$$x + 2y + 2z - 5 = 0 \quad \text{or} \quad x + 2y + 2z - 3 = 0$$

Question Type : MCQ

Question ID : 37135117265

Option 1 ID : 37135169057

Option 2 ID : 37135169059

Option 3 ID : 37135169060

Option 4 ID : 37135169058

Status : Answered

Chosen Option : 1