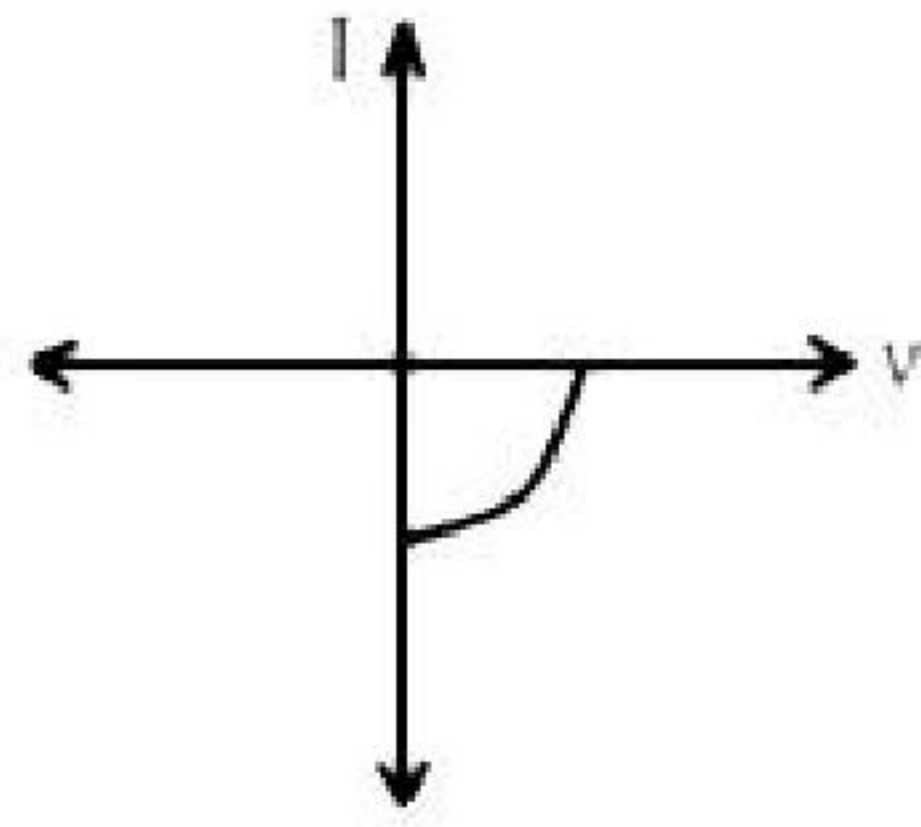


Q.1 I-V characteristics for a junction diode is shown. The device is



Ans

☒ 1. LED.

☒ 2. solar cell.

☒ 3. photo cell.

☒ 4. zener diode.

Question Type : MCQ

Question ID : 37135117046

Option 1 ID : 37135168182

Option 2 ID : 37135168181

Option 3 ID : 37135168183

Option 4 ID : 37135168184

Status : Answered

Chosen Option : 4

Q.2 An alternating current of frequency 50 Hz has the peak value as $14\sqrt{2}$ A. The time taken by the alternating current in reaching from zero to maximum value and r.m.s. value of current will be respectively

Ans

☒ 1. 0.025 s, 5A

☒ 2. 0.005 s, 5A

☒ 3. 0.005 s, $10\sqrt{2}$ A

☒ 4. 0.025 s, $10\sqrt{2}$ A

Question Type : MCQ

Question ID : 37135117008

Option 1 ID : 37135168029

Option 2 ID : 37135168030

Option 3 ID : 37135168031

Option 4 ID : 37135168032

Status : Answered

Chosen Option : 3

Q.3 A shell of mass 'M' initially at rest suddenly explodes in three fragments. Two of these fragments are of mass ' $M/4$ ' each, which move with velocities 3 ms^{-1} and 4 ms^{-1} respectively in mutually perpendicular directions. The magnitude of velocity of the third fragment is

Ans

☒ 1. $3\sqrt{5}\text{ ms}^{-1}$

☒ 2. 5 ms^{-1}

☒ 3. $1\sqrt{5}\text{ ms}^{-1}$

☒ 4. $2\sqrt{5}\text{ ms}^{-1}$

Question Type : MCQ

Question ID : 37135117037

Option 1 ID : 37135168148

Option 2 ID : 37135168147

Option 3 ID : 37135168145

Option 4 ID : 37135168146

Status : Answered

Chosen Op

Q.4 A satellite of mass 'm' is revolving around the earth of mass 'M' in an orbit of radius 'r' with constant angular velocity ' ω '. The angular momentum of the satellite is (G = gravitational constant)

Ans

☐ 1. $m (GMr)$

☒ 2. $m (GMr)^{1/2}$

☐ 3. $(GMmr)^{1/2}$

☐ 4. $\left(\frac{GMr}{m}\right)^2$

Question Type : MCQ

Question ID : 37135117049

Option 1 ID : 37135168193

Option 2 ID : 37135168194

Option 3 ID : 37135168195

Option 4 ID : 37135168196

Status : Answered

Chosen Option : 2

Q.5 A thin metal rod of mass 'M' and length 'L' is cut into 4 equal parts by cutting it perpendicular to its length, If moment of inertia of the rod about an axis passing through its centre and perpendicular to its axis is 'I' then moment of inertia of each part about the similar axis is

Ans

 1. $\frac{I}{16}$

 2. $\frac{I}{32}$

 3. $\frac{I}{128}$

 4. $\frac{I}{64}$

Question Type : MCQ

Question ID : 37135117025

Option 1 ID : 37135168100

Option 2 ID : 37135168098

Option 3 ID : 37135168097

Option 4 ID : 37135168099

Status : Answered

Chosen Option : 4

Q.6 Young's double slit experiment is performed in water, instead of air, then fringe width

Ans

✓ 1. decreases.

✗ 2. becomes infinite.

✗ 3. increases.

✗ 4. remains same.

Question Type : MCQ

Question ID : 37135117029

Option 1 ID : 37135168116

Option 2 ID : 37135168115

Option 3 ID : 37135168114

Option 4 ID : 37135168113

Status : Answered

Chosen Option : 1

Q.7 A particle executes uniform circular motion with angular momentum 'L'. Its rotational kinetic energy becomes half, when the angular frequency is doubled. Its new angular momentum is

Ans

✗ 1. $2L$

✗ 2. $\frac{L}{2}$

✗ 3. $4L$

✓ 4. $\frac{L}{4}$

Question Type : MCQ

Question ID : 37135117040

Option 1 ID : 37135168158

Option 2 ID : 37135168159

Option 3 ID : 37135168157

Option 4 ID : 37135168160

Status : Answered

Chosen Option : 4

Q.8 When a mass 'm' is suspended from a spring of length ' ℓ ', the length of the spring becomes 'L'. The mass is pulled down by a distance 'd' and released. If the equation of motion of the mass is $\frac{d^2x}{dt^2} + P^2x = 0$, then P is equal to
(g = acceleration due to gravity)

Ans

✗ 1. $\frac{L - \ell}{g}$

✗ 2. $\frac{g}{L - \ell}$

✓ 3. $\sqrt{\frac{g}{L - \ell}}$

✗ 4. $\sqrt{\frac{L - \ell}{g}}$

Question Type : MCQ

Question ID : 37135117028

Option 1 ID : 37135168110

Option 2 ID : 37135168109

Option 3 ID : 37135168111

Option 4 ID : 37135168112

Status : Answered

Chosen Option : 3

Q.9 A force 'F' of same magnitude is applied tangentially on upper and lower face of a cube, in opposite directions. Side of the cube is 'L'. The upper face of the cube shifts parallel to itself by a distance ' x_1 '. If another cube of same material but side '2L' is subjected to the above condition, then the displacement of the top layer is

Ans

☐ 1. $\frac{x_1}{6}$

☒ 2. $\frac{x_1}{2}$

☐ 3. $\frac{x_1}{8}$

☐ 4. $\frac{x_1}{4}$

Question Type : MCQ

Question ID : 37135117015

Option 1 ID : 37135168058

Option 2 ID : 37135168060

Option 3 ID : 37135168057

Option 4 ID : 37135168059

Status : Marked For Review

Chosen Option : 4

Q.10 A concave mirror of focal length ' f_1 ' is placed at a distance ' d ' from a convex lens of focal length ' f_2 '. A parallel beam of light coming from infinity parallel to principal axis falls on the convex lens and then after refraction falls on the concave mirror. If it is to retrace the path, the distance ' d ' should be

Ans

☐ 1. $f_1 + f_2$

☐ 2. $-f_1 + f_2$

☒ 3. $2f_1 + f_2$

☐ 4. $2f_1 - f_2$

Question Type : MCQ

Question ID : 37135117047

Option 1 ID : 37135168185

Option 2 ID : 37135168186

Option 3 ID : 37135168187

Option 4 ID : 37135168188

Status : Answered

Chosen Option : 4

Q.11 The ground state energy of hydrogen atom is -13.6 eV. The kinetic and potential energy of the electron in the second excited state is respectively

Ans

☐ 1. $+3.02$ eV, -1.51 eV

☒ 2. 1.51 eV, -3.02 eV

☐ 3. -1.51 eV, $+3.02$ eV

☐ 4. $+3.02$ eV, $+1.51$ eV

Question Type : MCQ

Question ID : 37135117003

Option 1 ID : 37135168012

Option 2 ID : 37135168010

Option 3 ID : 37135168009

Option 4 ID : 37135168011

Status : Answered

Chosen Option : 2

Q.12 The fundamental frequency of a sonometer wire is 50 Hz for some length and tension. If the length is increased by 25 % by keeping tension same, then frequency change of second harmonic is

Ans

- ☐ 1. decreased by 10%
- ☒ 2. decreased by 20%
- ☐ 3. decreased by 5%
- ☐ 4. decreased by 15%

Question Type : MCQ

Question ID : 37135117013

Option 1 ID : 37135168051

Option 2 ID : 37135168049

Option 3 ID : 37135168052

Option 4 ID : 37135168050

Status : Answered

Chosen Option : 3

Q.13 If the radius of the spherical Gaussian surface is increased then the electric flux due to a point charge enclosed by the surface

Ans

- ☐ 1. decreases.
- ☒ 2. remains unchanged.
- ☐ 3. increases.
- ☐ 4. is zero.

Question Type : MCQ

Question ID : 37135117014

Option 1 ID : 37135168055

Option 2 ID : 37135168053

Option 3 ID : 37135168054

Option 4 ID : 37135168056

Status : Marked For Review

Chosen Option : 2

Q.14 A closed pipe containing liquid showed a pressure 'P₁' by guage. When the valve is opened, pressure was reduced to 'P₂'. The speed of water flowing out of the pipe is [ρ = density of water]

Ans

☒ 1. $\left[\frac{2 (P_1 + P_2)}{\rho} \right]^{1/2}$

☒ 2. $\left[\frac{2 (P_1 - P_2)}{\rho} \right]^{1/2}$

☒ 3. $\left[\frac{\rho}{2 (P_1 - P_2)} \right]^{1/2}$

☒ 4. $\left[\frac{\rho}{2 (P_1 + P_2)} \right]^{1/2}$

Question Type : MCQ

Question ID : 37135117042

Option 1 ID : 37135168166

Option 2 ID : 37135168165

Option 3 ID : 37135168167

Option 4 ID : 37135168168

Status : Answered

Chosen Option : 2

Q.15 A charged particle is always moving parallel to the direction of magnetic field. The magnetic force acting on the particle will be

Ans

- ☒ 1. opposite to its velocity.
- ☒ 2. zero.
- ☒ 3. perpendicular to its velocity.
- ☒ 4. along its velocity.

Question Type : MCQ
Question ID : 37135117002
Option 1 ID : 37135168006
Option 2 ID : 37135168008
Option 3 ID : 37135168007
Option 4 ID : 37135168005
Status : Answered
Chosen Option : 2

Q.16 Soap solution is used for cleaning dirty clothes because

Ans

- ☒ 1. surface tension of solution is decreased.
- ☒ 2. viscosity of solution is increased.
- ☒ 3. temperature of solution is decreased.
- ☒ 4. surface tension of solution is increased.

Question Type : MCQ
Question ID : 37135117009
Option 1 ID : 37135168035
Option 2 ID : 37135168036
Option 3 ID : 37135168033
Option 4 ID : 37135168034
Status : Answered
Chosen Option : 1

Q.17 The refraction of light ray takes place from air to water, water to glass and again glass to air. The ray emerges parallel to incident ray. The correct relation is [n_a, n_w, n_g represent refractive indices of air, water and glass respectively.]

Ans

 1. $g^n_w = \frac{a^n_g}{a^n_w}$

 2. $g^n_w = a^n_g \times a^n_w$

 3. $w^n_g = \frac{a^n_w}{a^n_g}$

 4. $w^n_g = \frac{a^n_g}{a^n_w}$

Question Type : MCQ

Question ID : 37135117044

Option 1 ID : 37135168175

Option 2 ID : 37135168176

Option 3 ID : 37135168174

Option 4 ID : 37135168173

Status : Marked For Review

Chosen Option : 1

Q.18 A constant torque of 200N turns a flywheel, which is at rest, about an axis through its centre and perpendicular to its plane. If its moment of inertia is 50 kg-m², then in 4 second, what will be change in its angular momentum?

Ans

✓ 1. 800 kg-m²/s

✗ 2. 200 kg-m²/s

✗ 3. 40 kg-m²/s

✗ 4. 20 kg-m²/s

Question Type : MCQ

Question ID : 37135117020

Option 1 ID : 37135168080

Option 2 ID : 37135168079

Option 3 ID : 37135168078

Option 4 ID : 37135168077

Status : Marked For Review

Chosen Option : 1

Q.19 If a unit vector is represented as $\vec{u} = 0.4\hat{i} + 0.7\hat{j} + c\hat{k}$, then the value of 'c' is

Ans

✗ 1. $\sqrt{0.11}$

✗ 2. $\sqrt{0.25}$

✗ 3. $\sqrt{0.65}$

✓ 4. $\sqrt{0.35}$

Question Type : MCQ

Question ID : 37135117022

Option 1 ID : 37135168085

Option 2 ID : 37135168086

Option 3 ID : 37135168088

Option 4 ID : 37135168087

Status : Answered

Chosen Option : 4

Q.20 A body performing simple harmonic motion has potential energy ' P_1 ' at displacement ' x_1 '. Its potential energy is ' P_2 ' at displacement ' x_2 '. The potential energy ' P ' at displacement $(x_1 + x_2)$ is

Ans

☐ 1. $P_1 + P_2$

☐ 2. $\sqrt{P_1 P_2}$

☐ 3. $\sqrt{P_1^2 + P_2^2}$

☒ 4. $P_1 + P_2 + 2\sqrt{P_1 P_2}$

Question Type : MCQ

Question ID : 37135117045

Option 1 ID : 37135168177

Option 2 ID : 37135168180

Option 3 ID : 37135168178

Option 4 ID : 37135168179

Status : Answered

Chosen Option : 4

Q.21 What should be the length of a closed pipe to produce resonance with sound wave of wavelength 62 cm, in fundamental mode ?
[Neglect end correction]

Ans

☐ 1. 31 cm

☒ 2. 15.5 cm

☐ 3. 20.6 cm

☐ 4. 46.5 cm

Question Type : MCQ

Question ID : 37135117048

Option 1 ID : 37135168190

Option 2 ID : 37135168192

Option 3 ID : 37135168191

Option 4 ID : 37135168189

Status : Marked For Review

Chosen Option : 2

Q.22 A thick brass wire of length 'L' and density ' ρ ' is suspended from rigid support. Due to its own weight, ' ℓ ' is the increase in length. Young's modulus 'Y' of brass wire in terms of density is
(g = acceleration due to gravity)

Ans

 1. $Y = \frac{\rho g L}{4\ell}$

 2. $Y = \frac{\rho g L^2}{4\ell}$

 3. $Y = \frac{\rho g L}{3\ell}$

 4. $Y = \frac{\rho g L^2}{\ell}$

Question Type : **MCQ**

Question ID : **37135117038**

Option 1 ID : **37135168152**

Option 2 ID : **37135168149**

Option 3 ID : **37135168150**

Option 4 ID : **37135168151**

Status : **Marked For Review**

Chosen Option : **4**

Q.23 The percentage errors in measurements of mass and speed of a body are 2% and 3% respectively. What is the percentage error in kinetic energy of the body?

Ans

☐ 1. 9%

☐ 2. 5%

☒ 3. 8%

☐ 4. 0%

Question Type : MCQ

Question ID : 37135117017

Option 1 ID : 37135168068

Option 2 ID : 37135168066

Option 3 ID : 37135168067

Option 4 ID : 37135168065

Status : Answered

Chosen Option : 3

Q.24 In the process of space communication, use of modem is necessary. In which one of the following modes modem acts as a modulator and a demodulator respectively?

Ans

☒ 1. Transmitting and receiving.

☐ 2. Both receiving.

☐ 3. Both transmitting.

☐ 4. Receiving and transmitting.

Question Type : MCQ

Question ID : 37135117026

Option 1 ID : 37135168101

Option 2 ID : 37135168104

Option 3 ID : 37135168103

Option 4 ID : 37135168102

Status : Marked For Review

Chosen Option : 1

Q.25 A body is moving along the circumference of a circle of radius 'r' with uniform speed 'v', then the radial acceleration of the body is

Ans

 1. $\frac{v}{r}$

 2. $\frac{v^2}{r} < 0$

 3. $\frac{v^2}{r} > 0$

 4. zero

Question Type : MCQ

Question ID : 37135117034

Option 1 ID : 37135168133

Option 2 ID : 37135168135

Option 3 ID : 37135168134

Option 4 ID : 37135168136

Status : Marked For Review

Chosen Option : 3

Q.26 Two concentric circular coils of 'n' turns each are situated in the same plane. Their radii are ' a_1 ' and ' a_2 ' ($a_2 > a_1$) and they carry currents ' I_1 ' and ' I_2 ' respectively ($I_1 > I_2$) in opposite direction. The magnetic field at the centre is

Ans

✓ 1. $\frac{\mu_0 n}{2} \left[\frac{I_1 a_2 - I_2 a_1}{a_1 a_2} \right]$

✗ 2. $\frac{\mu_0 n}{2 a_1 a_2} [I_1 - I_2]$

✗ 3. $\frac{\mu_0 n}{2 I_1 I_2} [a_2 - a_1]$

✗ 4. $\frac{\mu_0 n}{2} \left[\frac{I_1 a_1 - I_2 a_2}{a_1 a_2} \right]$

Question Type : MCQ

Question ID : 37135117039

Option 1 ID : 37135168154

Option 2 ID : 37135168155

Option 3 ID : 37135168156

Option 4 ID : 37135168153

Status : Answered

Chosen Option : 1

Q.27

The function of a dielectric in a capacitor is

Ans

☒ 1.

to increase the effective potential on plates.

☒ 2.

to reduce the effective potential on plates.

☒ 3.

to decrease the capacitance.

☒ 4.

to reduce the plate area of capacitor.

Question Type : MCQ

Question ID : 37135117041

Option 1 ID : 37135168162

Option 2 ID : 37135168161

Option 3 ID : 37135168163

Option 4 ID : 37135168164

Status : Answered

Chosen Option : 2

Q.28

The equation of simple harmonic wave is given as $y = 5 \sin \frac{\pi}{2} (100 t - x)$, where 'x'

and 'y' are in metre and time in second. The period of the wave is

Ans

☒ 1.

0.02 s

☒ 2.

5 s

☒ 3.

25 s

☒ 4.

0.04 s

Question Type : MCQ

Question ID : 37135117004

Option 1 ID : 37135168015

Option 2 ID : 37135168014

Option 3 ID : 37135168013

Option 4 ID : 37135168016

Status : Answered

Chosen Option : 4

Q.29 Two progressive waves are travelling towards each other with velocity 50 m/s and frequency 200 Hz. The distance between two consecutive antinodes is

Ans

☒ 1. 0.031 m

☒ 2. 0.125 m

☒ 3. 0.250 m

☒ 4. 0.0625 m

Question Type : MCQ

Question ID : 37135117023

Option 1 ID : 37135168089

Option 2 ID : 37135168091

Option 3 ID : 37135168092

Option 4 ID : 37135168090

Status : Answered

Chosen Option : 2

Q.30 The magnetic moment produced in a substance of mass 5 gram is $6 \times 10^{-7} \text{ Am}^2$. If its density is 5 g/cm^3 , then intensity of magnetization in $\frac{\text{A}}{\text{m}}$ will be

Ans

☒ 1. 6

☒ 2. 60

☒ 3. $\frac{1}{6}$

☒ 4. 0.6

Question Type : MCQ

Question ID : 37135117024

Option 1 ID : 37135168094

Option 2 ID : 37135168096

Option 3 ID : 37135168095

Option 4 ID : 37135168093

Status : Answered

Chosen Option : 4

Q.31 A coin is placed on the horizontal plate. Plate performs S.H.M. vertically with angular frequency ' ω '. The amplitude (A) of oscillations is gradually increased. The coin will lose contact with plate for the first time when amplitude is
(g = acceleration due to gravity)

Ans

✓ 1. $\frac{g}{\omega^2}$

✗ 2. zero

✗ 3. $\frac{\omega^2}{g}$

✗ 4. $\frac{A}{2}$

Question Type : MCQ

Question ID : 37135117006

Option 1 ID : 37135168021

Option 2 ID : 37135168024

Option 3 ID : 37135168022

Option 4 ID : 37135168023

Status : Marked For Review

Chosen Option : 4

Q.32 Moving coil galvanometers M_1 and M_2 have resistance, number of turns, area of coil and magnetic field as follows.

$$R_1 = 10\Omega, R_2 = 14\Omega, N_1 = 30, N_2 = 42,$$

$$A_1 = 3.6 \times 10^{-3} \text{ m}^2, A_2 = 1.8 \times 10^{-2} \text{ m}^2, B_1 = 0.25 \text{ T}, B_2 = 0.50 \text{ T}$$

(Spring constants are same for both materials)

The ratio of (i) current sensitivity and (ii) voltage sensitivity for galvanometer (M_2 to M_1) is respectively

Ans

☒ 1. 1:1, 1.4:1

☒ 2. 1:1.4, 1:1

☒ 3. 4:1, 1:1

☒ 4. 1.4: 1, 1:1

Question Type : MCQ

Question ID : 37135117021

Option 1 ID : 37135168082

Option 2 ID : 37135168083

Option 3 ID : 37135168084

Option 4 ID : 37135168081

Status : Marked For Review

Chosen Option : 2

Q.33 A water film is formed between the two straight parallel wires, each of length 10 cm, kept at a separation of 0.5 cm. Now, the separation between them is increased by 1 mm without breaking the water film.

The work done for this is

(surface tension of water = $7.2 \times 10^{-2} \text{ Nm}^{-1}$)

Ans

 1. $7.22 \times 10^{-6} \text{ J}$

 2. $5.76 \times 10^{-5} \text{ J}$

 3. $1.44 \times 10^{-5} \text{ J}$

 4. $2.88 \times 10^{-5} \text{ J}$

Question Type : **MCQ**

Question ID : **37135117030**

Option 1 ID : **37135168117**

Option 2 ID : **37135168120**

Option 3 ID : **37135168118**

Option 4 ID : **37135168119**

Status : **Answered**

Chosen Option : **3**

Q.34 An electron in the ground state of hydrogen atom is revolving in a circular orbit of radius R. The orbital magnetic moment of the electron is
(m = mass of electron, h = Planck's constant, e = electronic charge)

Ans

 1. $\frac{-eh}{\pi m}$

 2. $\frac{eh}{2\pi m}$

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

 4. $\frac{eh}{4\pi m}$

Question Type : **MCQ**

Question ID : **37135117031**

Option 1 ID : **37135168122**

Option 2 ID : **37135168123**

Option 3 ID : **37135168121**

Option 4 ID : **37135168124**

Status : **Marked For Review**

Chosen Option : **2**

Q.35 A potentiometer wire of length 100 cm and resistance $3\ \Omega$ is connected in series with resistance of $8\ \Omega$ and an accumulator of 4 volt whose internal resistance is $1\ \Omega$.

A cell of e.m.f. 'E' is balanced by 50 cm length of the wire. The e.m.f. of the cell is

Ans

 1. 1.00 volt.

 2. 0.75 volt.

 3. 0.50 volt.

 4. 0.25 volt.

Question Type : MCQ

Question ID : 37135117033

Option 1 ID : 37135168132

Option 2 ID : 37135168131

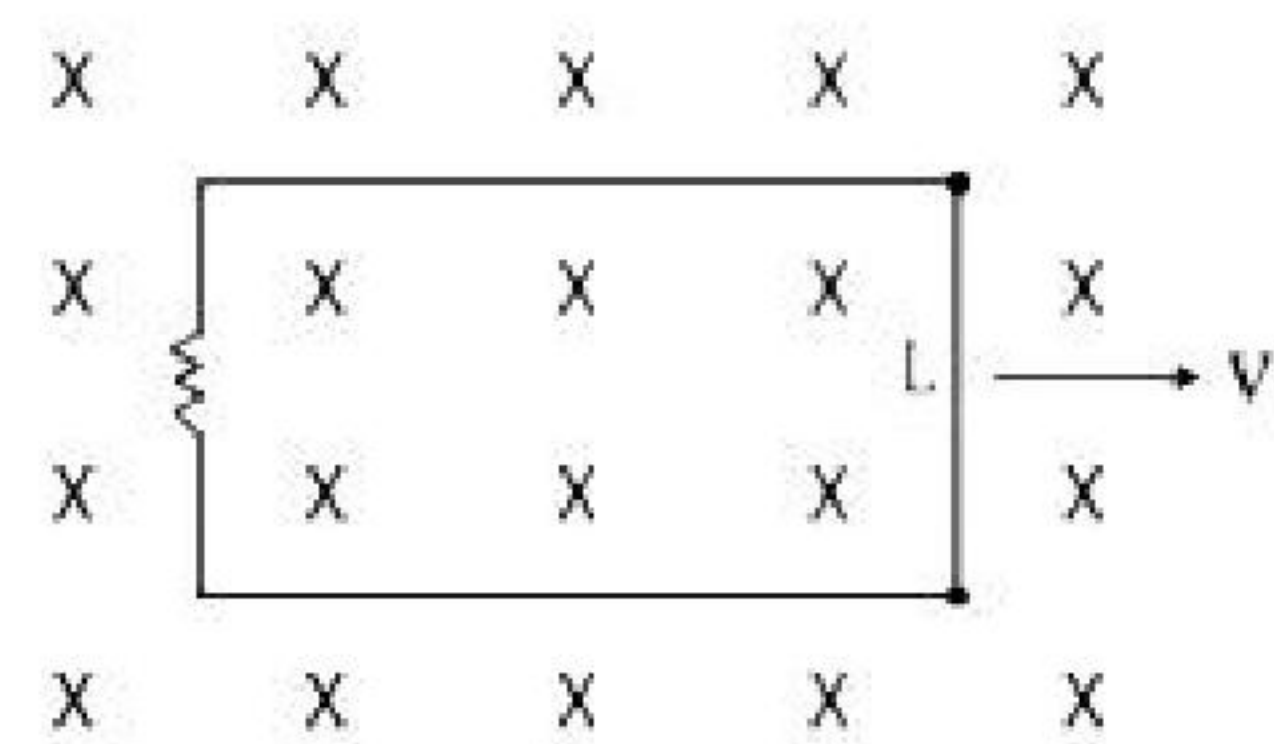
Option 3 ID : 37135168130

Option 4 ID : 37135168129

Status : Marked For Review

Chosen Option : 2

Q.36 A long metal rod of length 'L' completes the circuit as shown. The area of the circuit is perpendicular to magnetic field 'B'. Total resistance of the circuit is 'R'. The force needed to move the rod in the direction as shown with constant speed 'V' is



Ans

☒ 1. $\frac{B^2 LV}{R}$

☒ 2. $\frac{BLV}{R}$

☒ 3. $\frac{BLV^2}{R}$

☒ 4. $\frac{B^2 L^2 V}{R}$

Question Type : MCQ

Question ID : 37135117036

Option 1 ID : 37135168143

Option 2 ID : 37135168142

Option 3 ID : 37135168144

Option 4 ID : 37135168141

Status : Marked For Review

Chosen Option : 4

Q.37 A bar magnet is held perpendicular to a uniform magnetic field. The couple acting on the magnet is to be halved by rotating it. Through what angle it should be rotated? $\left[\sin\left(\frac{\pi}{2}\right) = 1\right]$

Ans

☐ 1. $\sin^{-1}(0.8660)$

☐ 2. $\sin^{-1}(0.7071)$

☐ 3. $\sin^{-1}(1)$

☒ 4. $\sin^{-1}(0.5)$

Question Type : MCQ

Question ID : 37135117012

Option 1 ID : 37135168047

Option 2 ID : 37135168046

Option 3 ID : 37135168048

Option 4 ID : 37135168045

Status : Marked For Review

Chosen Option : 4

Q.38 In single slit diffraction experiment, when the distance of separation between the slit and screen is doubled, the angular separation between fringes

Ans

☐ 1. increases.

☐ 2. decreases.

☒ 3. remains same.

☐ 4.

first increases and then decreases.

Question Type : MCQ

Question ID : 37135117005

Option 1 ID : 37135168017

Option 2 ID : 37135168018

Option 3 ID : 37135168020

Option 4 ID : 37135168019

Status : Answered

Chosen Option : 3

Q.39 A sphere of gold when brought towards a powerful magnet experiences

Ans

☐ 1. attractive force.

☒ 2. repulsive force.

☐ 3. zero force.

☐ 4. nuclear force.

Question Type : MCQ

Question ID : 37135117050

Option 1 ID : 37135168199

Option 2 ID : 37135168198

Option 3 ID : 37135168197

Option 4 ID : 37135168200

Status : Answered

Chosen Option : 1

Q.40 A lift of mass 'm' is ascending with an acceleration 'a' ($a < g$). The tension in the cable of the lift is

(g = acceleration due to gravity)

Ans

☐ 1. $m(g - a)$

☒ 2. $m(g + a)$

☐ 3. $m(2g + a)$

☐ 4. $m(a - g)$

Question Type : MCQ

Question ID : 37135117032

Option 1 ID : 37135168125

Option 2 ID : 37135168128

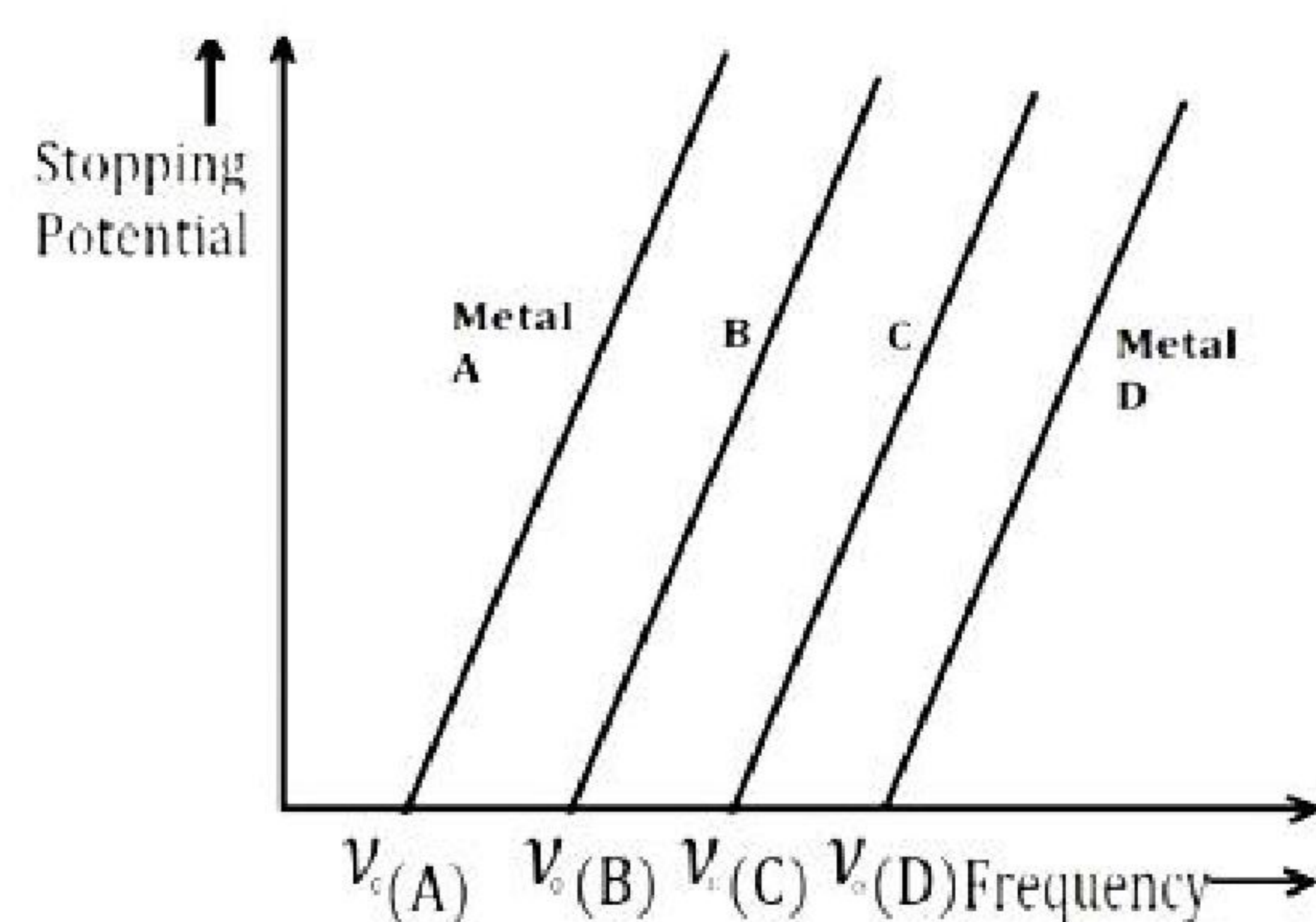
Option 3 ID : 37135168127

Option 4 ID : 37135168126

Status : Answered

Chosen Option : 2

- Q.41** The variation of stopping potential for metals A, B, C and D with frequency of incident radiation is as shown in the figure. For which metal, stopping potential is higher for lower values of threshold frequency (ν_0)?
[The frequency of incident radiation, ' ν ' is same.]



- Ans
- ☒ 1. C
 - ☒ 2. D
 - ☒ 3. A
 - ☒ 4. B

Question Type : **MCQ**

Question ID : **37135117016**

Option 1 ID : **37135168063**

Option 2 ID : **37135168064**

Option 3 ID : **37135168061**

Option 4 ID : **37135168062**

Status : **Marked For Review**

Chosen Option : **3**

Q.42 The threshold wavelengths for photoelectric emission from two metals A and B are 400 nm and 800 nm respectively. The ratio of their work functions, ϕ_A to ϕ_B is

Ans

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

 2. 4

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

 4. 2

Question Type : MCQ

Question ID : 37135117043

Option 1 ID : 37135168170

Option 2 ID : 37135168172

Option 3 ID : 37135168169

Option 4 ID : 37135168171

Status : Answered

Chosen Option : 4

Q.43 If p–n junction diode is reverse biased then

Ans

 1. potential barrier decreases.

 2.

width of the depletion layer decreases.

 3.

electrical conduction is possible.

 4.

width of the depletion layer increases.

Question Type : MCQ

Question ID : 37135117019

Option 1 ID : 37135168075

Option 2 ID : 37135168074

Option 3 ID : 37135168076

Option 4 ID : 37135168073

Status : Answered

Chosen Option : 4

Q.44 A prism having refractive index $\sqrt{2}$ and refracting angle 30° has one of the refracting surfaces silvered. The beam of light incident on the other refracting surface will retrace its path, if angle of incidence is $[\sin^{-1} \frac{\pi}{6} = 0.5]$

Ans

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

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

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

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

Question Type : **MCQ**

Question ID : **37135117007**

Option 1 ID : **37135168028**

Option 2 ID : **37135168025**

Option 3 ID : **37135168027**

Option 4 ID : **37135168026**

Status : **Answered**

Chosen Option : **4**

Q.45 The resultant of two vectors $\vec{P}$ and $\vec{Q}$ is $\vec{R}$. When the direction of $\vec{Q}$ is reversed, the resultant is given by $\vec{S}$. Which one of the following is true for vectors $\vec{R}$ and $\vec{S}$?

Ans

☒ 1. $R^2 - S^2 = (P^2 + Q^2)$

☒ 2. $R^2 - S^2 = 2 (\vec{P} \cdot \vec{Q})$

☒ 3. $R^2 + S^2 = 4 (\vec{P} \cdot \vec{Q})$

☒ 4. $R^2 + S^2 = 2(P^2 + Q^2)$

Question Type : MCQ

Question ID : 37135117027

Option 1 ID : 37135168107

Option 2 ID : 37135168105

Option 3 ID : 37135168106

Option 4 ID : 37135168108

Status : Marked For Review

Chosen Option : 4

Q.46 In meter-bridge experiment a resistance of $18\ \Omega$ is connected in left gap and an unknown resistance R is connected in right gap. The null point is obtained at ' ℓ_1 ' from left end. If unknown resistance is replaced by $\left(\frac{R}{3}\right)\ \Omega$, the null point is obtained at $1.5\ \ell_1$. The unknown resistance is

Ans

☒ 1. $9\ \Omega$

☒ 2. $36\ \Omega$

☒ 3. $18\ \Omega$

☒ 4. $27\ \Omega$

Question Type : MCQ

Question ID : 37135117010

Option 1 ID : 37135168037

Option 2 ID : 37135168040

Option 3 ID : 37135168038

Option 4 ID : 37135168039

Status : Marked For Review

Chosen Option : 1

Q.47 Two satellites 'A' and 'B' of same mass are revolving round the earth at height ' $2R$ ' and ' $3R$ ' respectively above the surface of the earth. The ratio of kinetic energies of A to B will be

Ans

☒ 1. $3:2$

☒ 2. $3:4$

☒ 3. $2:3$

☒ 4. $4:3$

Question Type : MCQ

Question ID : 37135117011

Option 1 ID : 37135168043

Option 2 ID : 37135168042

Option 3 ID : 37135168044

Option 4 ID : 37135168041

Status : Marked For Review

Chosen Option : 4

Q.48 For athermanous substances, coefficient of transmission is

Ans

☒ 1.

less than one but greater than zero.

☒ 2. zero.

☒ 3. equal to one.

☒ 4. greater than one.

Question Type : MCQ

Question ID : 37135117018

Option 1 ID : 37135168071

Option 2 ID : 37135168069

Option 3 ID : 37135168070

Option 4 ID : 37135168072

Status : Marked For Review

Chosen Option : 3

Q.49 A motorcyclist rides in a horizontal circle about central vertical axis inside a cylindrical chamber of radius 'r'. If the coefficient of friction between the tyres and the inner surface of chamber is 'μ', the minimum speed of motorcyclist to prevent him from skidding is ('g' = acceleration due to gravity)

Ans

 1. $\sqrt{\frac{\mu g}{r}}$

 2. $\sqrt{\frac{r\mu}{g}}$

 3. $\sqrt{\frac{g}{r\mu}}$

 4. $\sqrt{\frac{rg}{\mu}}$

Question Type : **MCQ**

Question ID : **37135117001**

Option 1 ID : **37135168003**

Option 2 ID : **37135168004**

Option 3 ID : **37135168001**

Option 4 ID : **37135168002**

Status : **Answered**

Chosen Option : **4**

Q.50

For a gas $\frac{R}{c_v} = 0.67$. This gas is made up of molecules which are

Ans

☒ 1. diatomic.

☒ 2. polyatomic.

☒ 3. monoatomic.

☒ 4.

mixture of diatomic and polyatomic.

Question Type : MCQ

Question ID : 37135117035

Option 1 ID : 37135168137

Option 2 ID : 37135168138

Option 3 ID : 37135168140

Option 4 ID : 37135168139

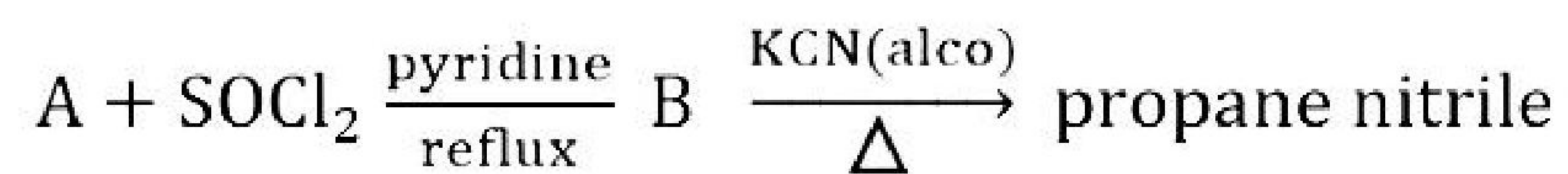
Status : Answered

Chosen Option : 3

Section: Chemistry

Q.1

Identify 'A' in the following reaction.



Ans

✓ 1. Ethanol

✗ 2. Propane

✗ 3. 1-Chloropropane

✗ 4. Propan-1-ol

Question Type : MCQ

Question ID : 37135117080

Option 1 ID : 37135168320

Option 2 ID : 37135168318

Option 3 ID : 37135168319

Option 4 ID : 37135168317

Status : Answered

Chosen Option : 4

Q.2

IUPAC name of isobutyl chloride is

Ans

 1. 2-chloropropane

 2. 2-chlorobutane

 3. 2-chloro-2-methylpropane

 4. 1-chloro-2-methylpropane

Question Type : MCQ

Question ID : 37135117086

Option 1 ID : 37135168341

Option 2 ID : 37135168343

Option 3 ID : 37135168342

Option 4 ID : 37135168344

Status : Answered

Chosen Option : 2

Q.3

Which among the following is a mineral of magnesium?

Ans

 1. Limonite

 2. Cryolite

 3. Magnesite

 4. Magnetite

Question Type : **MCQ**

Question ID : **37135117070**

Option 1 ID : **37135168280**

Option 2 ID : **37135168277**

Option 3 ID : **37135168278**

Option 4 ID : **37135168279**

Status : **Answered**

Chosen Option : **3**

Q.4 What is the difference in molar mass of any two neighbouring alkanes?

Ans

 1. 12 g mol⁻¹

 2. 10 g mol⁻¹

 3. 15 g mol⁻¹

 4. 14 g mol⁻¹

Question Type : MCQ

Question ID : 37135117077

Option 1 ID : 37135168307

Option 2 ID : 37135168305

Option 3 ID : 37135168306

Option 4 ID : 37135168308

Status : Answered

Chosen Option : 4

Q.5 Which among the following elements has lowest value of electronegativity?

Ans

 1. Bi

 2. As

 3. Sb

 4. N

Question Type : MCQ

Question ID : 37135117062

Option 1 ID : 37135168247

Option 2 ID : 37135168245

Option 3 ID : 37135168246

Option 4 ID : 37135168248

St.

Chosen Op

Q.6

Identify the monomers used in preparation of Novolac.

Ans

 1. Phenol and Ethanol

 2. Urea and Phenol

 3. Phenol and Methanal

 4. Urea and Methanal

Question Type : **MCQ**

Question ID : **37135117099**

Option 1 ID : **37135168393**

Option 2 ID : **37135168396**

Option 3 ID : **37135168394**

Option 4 ID : **37135168395**

Status : **Answered**

Chosen Option : **3**

Q.7

What is the oxidation state of chlorine atom in hypochlorous acid?

Ans

 1. +2

 2. +3

 3. -1

 4. +1

Question Type : MCQ

Question ID : 37135117078

Option 1 ID : 37135168311

Option 2 ID : 37135168312

Option 3 ID : 37135168309

Option 4 ID : 37135168310

Status : Marked For Review

Chosen Option : 4

Q.8

Which catalyst is used in conversion of chlorobenzene to phenol by Rasching process?

Ans

✓ 1. Calcium phosphate

✗ 2. Calcium carbonate

✗ 3. Calcium sulphate

✗ 4. Calcium chloride

Question Type : MCQ

Question ID : 37135117069

Option 1 ID : 37135168274

Option 2 ID : 37135168276

Option 3 ID : 37135168275

Option 4 ID : 37135168273

Status : Marked For Review

Chosen Option : 1

Q.9

Which class of terpenes includes β -carotene?

Ans

✓ 1. Tetraterpenes

✗ 2. Triterpenes

✗ 3. Monoterpenes

✗ 4. Sesquiterpenes

Question Type : MCQ

Question ID : 37135117059

Option 1 ID : 37135168236

Option 2 ID : 37135168235

Option 3 ID : 37135168233

Option 4 ID : 37135168234

Status : Marked For Review

Chosen Option : 2

Q.10

What is the oxidation state of sulphur in oil of vitriol?

Ans

 1. +2

 2. +6

 3. -3

 4. +3

Question Type : MCQ

Question ID : 37135117097

Option 1 ID : 37135168388

Option 2 ID : 37135168386

Option 3 ID : 37135168385

Option 4 ID : 37135168387

Status : Answered

Chosen Option : 2

Q.11

What is the highest oxidation state exhibited by actinoids?

Ans

✓ 1. +7

✗ 2. +3

✗ 3. +6

✗ 4. +4

Question Type : MCQ

Question ID : 37135117051

Option 1 ID : 37135168201

Option 2 ID : 37135168204

Option 3 ID : 37135168202

Option 4 ID : 37135168203

Status : Marked For Review

Chosen Option : 1

Q.12

Which among the following is NOT obtained when bromobenzene treated with bromoethane and sodium in presence of dry ether ?

Ans

 1. n-butane

 2. Diphenyl

 3. Toluene

 4. Ethylbenzene

Question Type : MCQ

Question ID : 37135117058

Option 1 ID : 37135168230

Option 2 ID : 37135168229

Option 3 ID : 37135168231

Option 4 ID : 37135168232

Status : Answered

Chosen Option : 3

Q.13 What is the oxidation state and coordination number of platinum respectively in $[\text{Pt}(\text{NH}_3)_6]^{4+}$?

Ans

 1. +6 and 4

 2. +4 and 4

 3. +6 and 6

 4. +4 and 6

Question Type : MCQ

Question ID : 37135117093

Option 1 ID : 37135168371

Option 2 ID : 37135168372

Option 3 ID : 37135168370

Option 4 ID : 37135168369

Status : Answered

Chosen Option : 4

Q.14 At what temperature the volume of a gas becomes absolutely zero ?

Ans

 1. 273.15°C

 2. -273.15 K

 3. 273.15 K

 4. -273.15°C

Question Type : MCQ

Question ID : 37135117081

Option 1 ID : 37135168322

Option 2 ID : 37135168323

Option 3 ID : 37135168321

Option 4 ID : 37135168324

Status : Answered

Chosen Op

Q.15

What is the coordination number of cation in ionic compound if the type of hole occupied by cation is octahedral ?

Ans

 1. 8

 2. 6

 3. 4

 4. 3

Question Type : MCQ

Question ID : 37135117055

Option 1 ID : 37135168220

Option 2 ID : 37135168219

Option 3 ID : 37135168218

Option 4 ID : 37135168217

Status : Answered

Chosen Option : 3

Q.16

A sample of calcium carbonate has the following percentage composition.

Ca = 40 %, C = 12 % and O = 48 %

According to law of definite proportion the weight of calcium in 4 g of a sample of calcium carbonate from another source will be (at. no. Ca = 40, C = 12, O = 16)

Ans

 1. 1.6×10^{-2} g

 2. 1.6 g

 3. 0.1 g

 4. 0.2 g

Question Type : MCQ

Question ID : 37135117085

Option 1 ID : 37135168338

Option 2 ID : 37135168339

Option 3 ID : 37135168337

Option 4 ID : 37135168340

Status : Marked For Review

Chosen Option : 2

Q.17

The number of σ bonds in carboxylic acid are

Ans

✓ 1. 13

✗ 2. 8

✗ 3. 12

✗ 4. 6

Question Type : MCQ

Question ID : 37135117073

Option 1 ID : 37135168292

Option 2 ID : 37135168290

Option 3 ID : 37135168291

Option 4 ID : 37135168289

Status : Answered

Chosen Option : 2

Q.18

Which of the following reactions involves α -halogenation of carboxylic acid?

Ans

 1. Gattermann reaction

 2. Riemer - Tiemann reaction

 3. Sandmeyer reaction

 4.

Hell-Vohlard-Zelinsky reaction

Question Type : MCQ

Question ID : 37135117095

Option 1 ID : 37135168377

Option 2 ID : 37135168378

Option 3 ID : 37135168379

Option 4 ID : 37135168380

Status : Answered

Chosen Option : 4

Q.19

Which among the following polymers belongs to class thermoplastic polymers ?

Ans

 1. Bakelite

 2. Polythene

 3. Terylene

 4. Neoprene

Question Type : MCQ
Question ID : 37135117064
Option 1 ID : 37135168256
Option 2 ID : 37135168253
Option 3 ID : 37135168254
Option 4 ID : 37135168255
Status : Answered
Chosen Option : 2

Q.20

Relative lowering in vapour pressure of a solution containing non volatile solute is the ratio of

Ans

 1.

Number of moles of solute to number of moles of solvent.

 2.

Number of moles of solvent to total number of moles of solution.

 3.

Number of moles of solvent to number of moles of solute.

 4.

Number of moles of solute to total number of moles of solution.

Question Type : MCQ
Question ID : 37135117075
Option 1 ID : 37135168297
Option 2 ID : 37135168300
Option 3 ID : 37135168299
Option 4 ID : 37135168298
Status :
Chosen Op

Q.21

Which of the following is an ionic compound?

Ans

 1. SO_2

 2. ICl

 3. CHCl_3

 4. KI

Question Type : MCQ

Question ID : 37135117096

Option 1 ID : 37135168381

Option 2 ID : 37135168382

Option 3 ID : 37135168384

Option 4 ID : 37135168383

Status : Answered

Chosen Option : 4

Q.22

Which of the following is used as disinfectant as well as antiseptic?

Ans

 1. Veronal

 2. Seldane

 3. Prontocil

 4. Phenol

Question Type : **MCQ**

Question ID : 37135117076

Option 1 ID : 37135168304

Option 2 ID : 37135168301

Option 3 ID : 37135168303

Option 4 ID : 37135168302

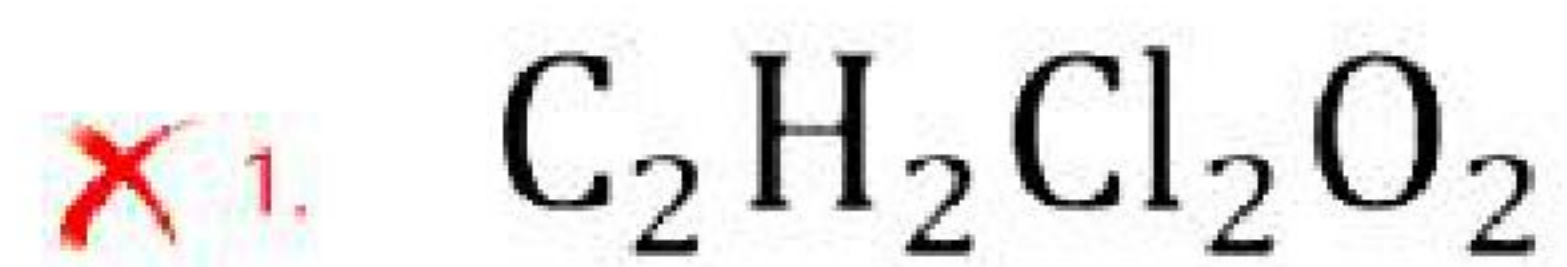
Status : **Answered**

Chosen Option : 4

Q.23

Find the empirical formula of organic compound if it contains 18.6 % C, 1.55 % H, 55.04 % chlorine ? (atomic mass C=12, H=1, Cl=35.5, O=16)

Ans



Question Type : **MCQ**

Question ID : **37135117061**

Option 1 ID : **37135168241**

Option 2 ID : **37135168244**

Option 3 ID : **37135168243**

Option 4 ID : **37135168242**

Status : **Marked For Review**

Chosen Option : **3**

Q.24

Which coordinate compound from following has a net negative charge on complex ion?

Ans

 1.

Tris(ethylene diammine)cobalt(III)chloride

 2.

Potassium trioxalato aluminate(III)

 3.

Tetracarbonyl Nickel(0)

 4.

Diammine silver(I)chloride

Question Type : MCQ

Question ID : 37135117057

Option 1 ID : 37135168228

Option 2 ID : 37135168226

Option 3 ID : 37135168227

Option 4 ID : 37135168225

Status : Marked For Review

Chosen Option : 3

Q.25

How many primary amines are possible for the formula $C_4H_{11}N$?

Ans

 1. 2

 2. 4

 3. 3

 4. 1

Question Type : **MCQ**

Question ID : 37135117082

Option 1 ID : 37135168326

Option 2 ID : 37135168328

Option 3 ID : 37135168327

Option 4 ID : 37135168325

Status : **Answered**

Chosen Option : 3

Q.26

Benzene diazonium chloride on reaction with ethanol forms

Ans

 1. aniline

 2. benzene

 3. nitrobenzene

 4. phenol

Question Type : MCQ

Question ID : 37135117071

Option 1 ID : 37135168284

Option 2 ID : 37135168282

Option 3 ID : 37135168283

Option 4 ID : 37135168281

Status : Marked For Review

Chosen Option : 1

Q.27

Which of the following is a tricarboxylic acid ?

Ans

 1. Valeric acid

 2. Oxalic acid

 3. Caproic acid

 4. Citric acid

Question Type : MCQ

Question ID : 37135117065

Option 1 ID : 37135168260

Option 2 ID : 37135168257

Option 3 ID : 37135168259

Option 4 ID : 37135168258

Status : Answered

Chosen Option : 4

Q.28 Which among the following alkali metal elements is used as coolant in fast breeder nuclear reactors.

Ans

✓ 1. Sodium

✗ 2. Potassium

✗ 3. Caesium

✗ 4. Lithium

Question Type : **MCQ**

Question ID : 37135117072

Option 1 ID : 37135168286

Option 2 ID : 37135168287

Option 3 ID : 37135168288

Option 4 ID : 37135168285

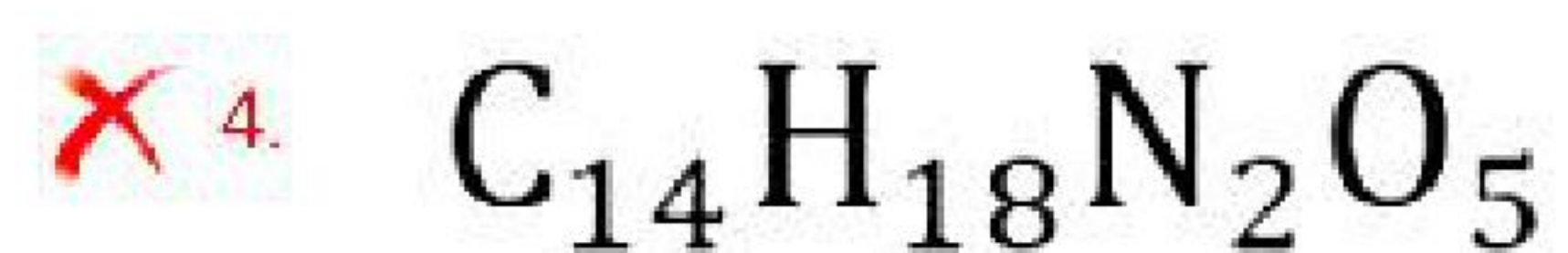
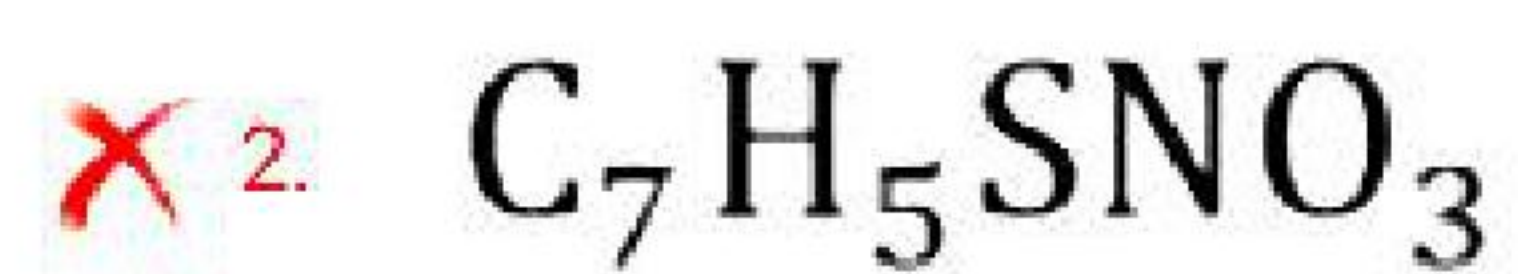
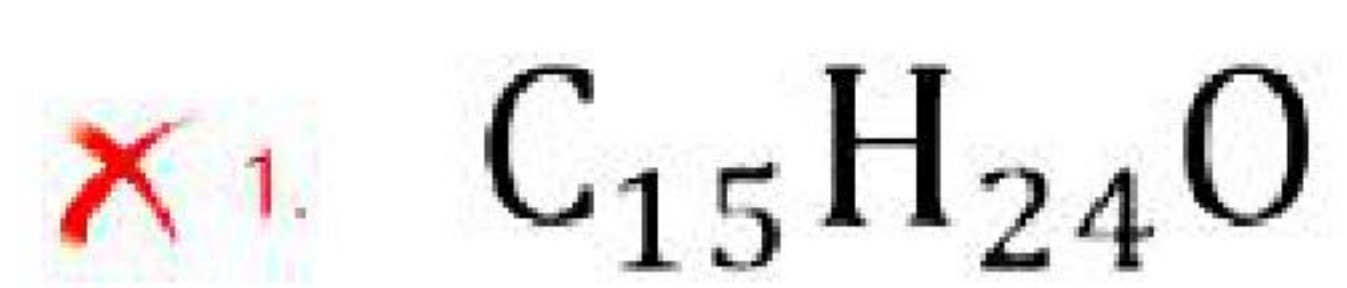
Status : **Marked For Review**

Chosen Option : 4

Q.29

Which of the following is the formula of BHA?

Ans



Question Type : MCQ

Question ID : 37135117054

Option 1 ID : 37135168213

Option 2 ID : 37135168215

Option 3 ID : 37135168214

Option 4 ID : 37135168216

Status : Answered

Chosen Option : 2

Q.30 If 2 kJ of heat is released from system and 6 kJ of work is done on the system, what is enthalpy change of system ?

Ans

 1. +8 kJ

 2. +6 kJ

 3. -8 kJ

 4. -2 kJ

Question Type : **MCQ**

Question ID : 37135117060

Option 1 ID : 37135168238

Option 2 ID : 37135168237

Option 3 ID : 37135168240

Option 4 ID : 37135168239

Status : **Answered**

Chosen Option : 4

Q.31 What is the highest oxidation state exhibited by any transition element among all ?

Ans

 1. +7

 2. +5

 3. +8

 4. +6

Question Type : **MCQ**

Question ID : 37135117068

Option 1 ID : 37135168270

Option 2 ID : 37135168272

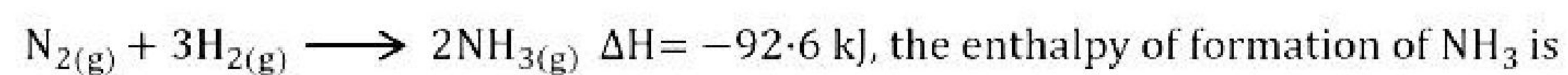
Option 3 ID : 37135168269

Option 4 ID : 37135168271

Status : **Answered**

Chosen Option : 1

Q.32 From the given reaction,



Ans

 1. -92.6 kJ

 2. -138.9 kJ

 3. -185.2 kJ

 4. -46.3 kJ

Question Type : MCQ

Question ID : 37135117067

Option 1 ID : 37135168265

Option 2 ID : 37135168267

Option 3 ID : 37135168268

Option 4 ID : 37135168266

Status : Answered

Chosen Option : 4

Q.33

Henry's law is a relation between

Ans

- ✓ 1. pressure and solubility
- ✗ 2. temperature and pressure
- ✗ 3. volume and solubility
- ✗ 4. pressure and volume

Question Type : MCQ

Question ID : 37135117098

Option 1 ID : 37135168390

Option 2 ID : 37135168389

Option 3 ID : 37135168392

Option 4 ID : 37135168391

Status : Answered

Chosen Option : 1

Q.34

What is the bond order in N_2 Molecule ?

Ans

 1. 2

 2. zero

 3. 1

 4. 3

Question Type : MCQ

Question ID : 37135117091

Option 1 ID : 37135168362

Option 2 ID : 37135168364

Option 3 ID : 37135168361

Option 4 ID : 37135168363

Status : Answered

Chosen Option : 4

Q.35

Which of the following is reacted with benzaldehyde to obtain l-phenylethanol?

Ans



Question Type : MCQ

Question ID : 37135117100

Option 1 ID : 37135168397

Option 2 ID : 37135168398

Option 3 ID : 37135168399

Option 4 ID : 37135168400

Status : Answered

Chosen Option : 3

Q.36

Which of the following alcohols is least soluble in water?

Ans

✓ 1. Pentan-1-ol

✗ 2. 2-methyl butan-2-ol

✗ 3. Pentan-2-ol

✗ 4. 2,2-Dimethyl propan-1-ol

Question Type : MCQ

Question ID : 37135117089

Option 1 ID : 37135168356

Option 2 ID : 37135168354

Option 3 ID : 37135168355

Option 4 ID : 37135168353

Status : Marked For Review

Chosen Option : 1

Q.37

Which among the following elements is obtained in pure form by liquation process of refining?

Ans

 1. Copper

 2. Tin

 3. Gallium

 4. Silicon

Question Type : **MCQ**

Question ID : **37135117079**

Option 1 ID : **37135168314**

Option 2 ID : **37135168313**

Option 3 ID : **37135168316**

Option 4 ID : **37135168315**

Status : **Answered**

Chosen Option : **2**

Q.38

The distance between electrodes of a conductivity cell is 0.98 cm and area of cross section is 1.96 cm². What is the cell constant ?

Ans

 1. 1 cm⁻¹

 2. 1.5 cm⁻¹

 3. 2 cm⁻¹

 4. 0.5 cm⁻¹

Question Type : MCQ

Question ID : 37135117090

Option 1 ID : 37135168359

Option 2 ID : 37135168358

Option 3 ID : 37135168357

Option 4 ID : 37135168360

Status : Marked For Review

Chosen Option : 4

Q.39

Which among the following is an example of amorphous solid?

Ans

 1. Camphor

 2. Magnesium

 3. Diamond

 4. Glass

Question Type : **MCQ**

Question ID : 37135117087

Option 1 ID : 37135168348

Option 2 ID : 37135168346

Option 3 ID : 37135168345

Option 4 ID : 37135168347

Status : **Answered**

Chosen Option : 1

Q.40

Which of the following alloy contain Al, Cu, Mg and Mn?

Ans

 1. Babbitt metal

 2. Stainless steel

 3. Spiegeleisen

 4. Duralumin

Question Type : **MCQ**

Question ID : **37135117083**

Option 1 ID : **37135168330**

Option 2 ID : **37135168331**

Option 3 ID : **37135168332**

Option 4 ID : **37135168329**

Status : **Answered**

Chosen Option : **4**

Q.41

If a dilute solution of AgNO_3 is added to dilute solution of excess NaI , then the species adsorbed on AgI colloidal particles is

Ans



Question Type : MCQ

Question ID : 37135117066

Option 1 ID : 37135168264

Option 2 ID : 37135168262

Option 3 ID : 37135168263

Option 4 ID : 37135168261

Status : Answered

Chosen Option : 1

Q.42

Which of the following groups increases the basic strength of substituted aniline?

Ans

 1. $-\text{SO}_3$

 2. $-\text{OCH}_3$

 3. $-\text{NO}_2$

 4. $-\text{CN}$

Question Type : MCQ

Question ID : 37135117074

Option 1 ID : 37135168295

Option 2 ID : 37135168294

Option 3 ID : 37135168293

Option 4 ID : 37135168296

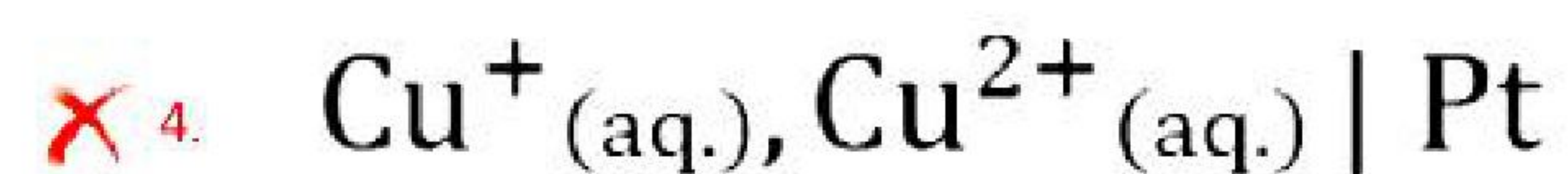
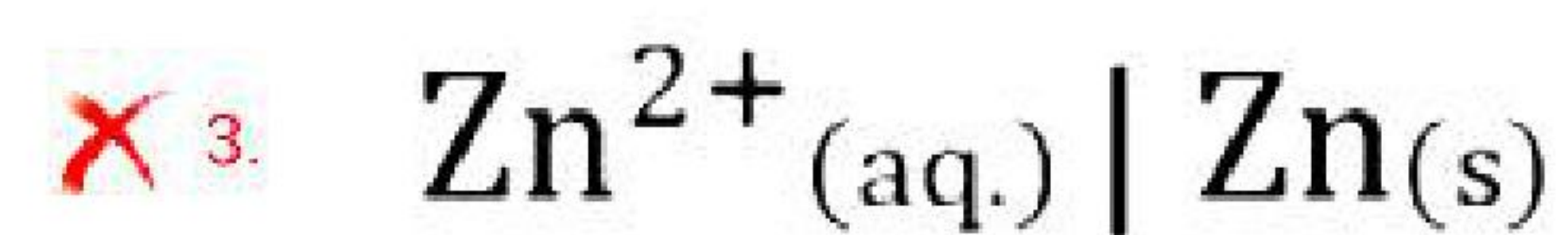
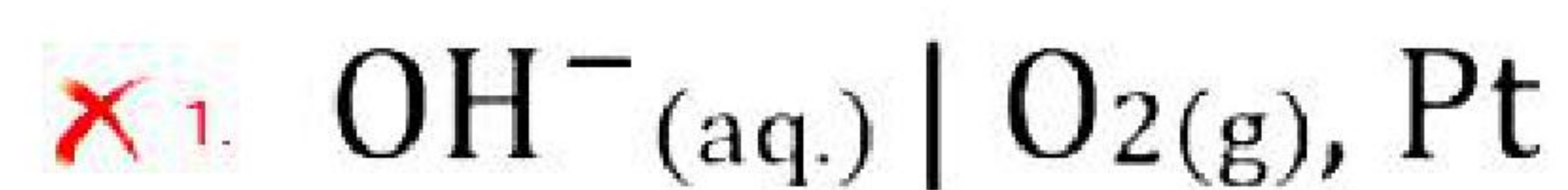
Status : Answered

Chosen Option : 2

Q.43

Which among the following is an example of metal-sparingly soluble salt electrode?

Ans



Question Type : MCQ

Question ID : 37135117094

Option 1 ID : 37135168374

Option 2 ID : 37135168375

Option 3 ID : 37135168373

Option 4 ID : 37135168376

Status : Answered

Chosen Option : 2

Q.44 In the reaction $2\text{N}_2\text{O}_{5(g)} \longrightarrow 4\text{NO}_{2(g)} + \text{O}_{2(g)}$ the rate of formation of $\text{NO}_{2(g)}$ and $\text{O}_{2(g)}$ are in the ratio of

Ans

✓ 1. 1:4

✗ 2. 1:1

✗ 3. 6:1

✗ 4. 4:1

Question Type : MCQ

Question ID : 37135117052

Option 1 ID : 37135168206

Option 2 ID : 37135168207

Option 3 ID : 37135168208

Option 4 ID : 37135168205

Status : Answered

Chosen Option : 1

Q.45 Standard enthalpy of formation of water is -286 kJ mol^{-1} . When 1800 mg of water is formed from its constituent elements in their standard states the amount of energy liberated is

Ans

 1. 2.86 kJ

 2. 5.72 kJ

 3. 57.2 kJ

 4. 28.6 kJ

Question Type : **MCQ**

Question ID : 37135117053

Option 1 ID : 37135168210

Option 2 ID : 37135168212

Option 3 ID : 37135168211

Option 4 ID : 37135168209

Status : **Answered**

Chosen Option : 4

Q.46

How much part of an atom occupies each corner of bcc unit cell ?

Ans

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

 2. $\frac{1}{8}$

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

 4. $\frac{1}{6}$

Question Type : MCQ

Question ID : 37135117084

Option 1 ID : 37135168334

Option 2 ID : 37135168336

Option 3 ID : 37135168333

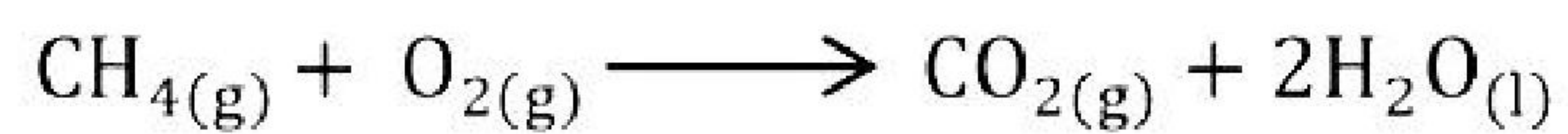
Option 4 ID : 37135168335

Status : Answered

Chosen Option : 2

Q.47

Identify the reducing agent in following reaction.



Ans

 1. $\text{CO}_{2(g)}$

 2. $\text{H}_2\text{O}_{(l)}$

 3. $\text{O}_{2(g)}$

 4. $\text{CH}_{4(g)}$

Question Type : MCQ

Question ID : 37135117056

Option 1 ID : 37135168223

Option 2 ID : 37135168224

Option 3 ID : 37135168222

Option 4 ID : 37135168221

Status : Answered

Chosen Option : 4

Q.48

Half-life of first order reaction $X \longrightarrow Y + Z$ is 3 minutes. What is the time required to reduce the concentration of 'X' by 90 % of it's initial concentration ?

Ans

 1. 4.12 minutes

 2. 9.969 minutes

 3. 9.105 minutes

 4. 12.05 minutes

Question Type : MCQ

Question ID : 37135117063

Option 1 ID : 37135168252

Option 2 ID : 37135168250

Option 3 ID : 37135168249

Option 4 ID : 37135168251

Status : Answered

Chosen Option : 2

Q.49

Which is an example of molecular hydride?

Ans

 1. KH

 2. NaH

 3. HF

 4. LiH

Question Type : MCQ

Question ID : 37135117092

Option 1 ID : 37135168365

Option 2 ID : 37135168366

Option 3 ID : 37135168368

Option 4 ID : 37135168367

Status : Answered

Chosen Option : 3

Q.50

Which among the following amino acids has a lowest molecular mass?

Ans



Proline



Aspartic acid



Serine



Glycine

Question Type : MCQ

Question ID : 37135117088

Option 1 ID : 37135168350

Option 2 ID : 37135168352

Option 3 ID : 37135168349

Option 4 ID : 37135168351

Status : Answered

Chosen Option : 3

Section : Mathematics

Q.1 If $Z = 10x + 25y$ subject to $0 \leq x \leq 3$, $0 \leq y \leq 3$, $x + y \leq 5$, $x \geq 0$, $y \geq 0$ then z is maximum at the point

Ans

 1. (2, 4)

 2. (1, 6)

 3. (2, 3)

 4. (4, 3)

Question Type : MCQ

Question ID : 37135117124

Option 1 ID : 37135168494

Option 2 ID : 37135168496

Option 3 ID : 37135168495

Option 4 ID : 37135168493

Status : Answered

Chosen Option : 3

Q.2 A problem in statistics is given to three students P, Q and R. Their chances of solving the problem are $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$ respectively. If all of them try independently, then the probability that the problem is solved, is

Ans

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

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

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

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

Question Type : MCQ

Question ID : 37135117148

Option 1 ID : 37135168589

Option 2 ID : 37135168591

Option 3 ID : 37135168592

Option 4 ID : 37135168590

Status : Answered

Chosen Option : 3

Q.3

The differential equation of the circles having their centres on the line $y = 8$ and touching the X-axis is

Ans

 1. $(y - 8)^2 \left[1 - \left(\frac{dy}{dx} \right)^2 \right] = 64$

 2. $(y - 8)^2 \left[1 + \left(\frac{dy}{dx} \right)^2 \right] = 64$

 3. $(y - 8) \left[1 + \left(\frac{dy}{dx} \right)^2 \right] = 64$

 4. $y^2 \left(1 + \frac{dy}{dx} \right) = 64$

Question Type : MCQ

Question ID : 37135117108

Option 1 ID : 37135168432

Option 2 ID : 37135168431

Option 3 ID : 37135168430

Option 4 ID : 37135168429

Status : Marked For Review

Chosen Option : 2

Q.4

The value of $\cos^{-1}\left(\cos\left(\frac{7\pi}{6}\right)\right)$ is

Ans

✓ 1. $\frac{5\pi}{6}$

✗ 2. $\frac{\pi}{3}$

✗ 3. $\frac{7\pi}{6}$

✗ 4. $\frac{\pi}{6}$

Question Type : MCQ

Question ID : 37135117118

Option 1 ID : 37135168470

Option 2 ID : 37135168471

Option 3 ID : 37135168469

Option 4 ID : 37135168472

Status : Answered

Chosen Option : 4

Q.5

The function $f(x) = (x + 2) e^{-x}$ is

Ans

 1.

decreasing in $(-\infty, -1)$ and increasing in $(-1, \infty)$

 2. decreasing for all x

 3.

increasing in $(-\infty, -1)$ and decreasing in $(-1, \infty)$

 4. increasing for all x

Question Type : MCQ

Question ID : 37135117121

Option 1 ID : 37135168483

Option 2 ID : 37135168481

Option 3 ID : 37135168484

Option 4 ID : 37135168482

Status : Answered

Chosen Option : 3

Q.6 The integrating factor of differential equation $(1 + y + x^2y) dx + (x + x^3) dy = 0$ is

Ans

 1. $\frac{1}{x}$

 2. x

 3. $\log x$

 4. e^x

Question Type : MCQ

Question ID : 37135117110

Option 1 ID : 37135168440

Option 2 ID : 37135168438

Option 3 ID : 37135168437

Option 4 ID : 37135168439

Status : Marked For Review

Chosen Option : 2

Q.7

If the length of perpendicular drawn from the point $(4, 1)$ on the line $3x - 4y + k = 0$ is 2 units, then the values of k are

Ans

✓_{1.} 2, -18

✗_{2.} -2, -18

✗_{3.} -2, 1

✗_{4.} -2, 18

Question Type : MCQ

Question ID : 37135117138

Option 1 ID : 37135168549

Option 2 ID : 37135168551

Option 3 ID : 37135168552

Option 4 ID : 37135168550

Status : Answered

Chosen Option : 4

Q.8

The principal solutions of $\cos 2x = \frac{-1}{2}$ are

Ans

 1. $x = \frac{-2\pi}{3}, x = \frac{4\pi}{3}$

 2. $x = \frac{\pi}{3}, x = \frac{2\pi}{3}$

 3. $x = \frac{-\pi}{3}, x = \frac{5\pi}{6}$

 4. $x = \frac{\pi}{3}, x = \frac{7\pi}{6}$

Question Type : MCQ

Question ID : 37135117102

Option 1 ID : 37135168405

Option 2 ID : 37135168407

Option 3 ID : 37135168406

Option 4 ID : 37135168408

Status : Answered

Chosen Option : 2

Q.9

$$\int_0^1 x(1-x)^5 dx =$$

Ans

 1. $\frac{1}{7}$

 2. $-\frac{1}{42}$

 3. $\frac{1}{42}$

 4. $\frac{1}{6}$

Question Type : MCQ

Question ID : 37135117122

Option 1 ID : 37135168485

Option 2 ID : 37135168488

Option 3 ID : 37135168486

Option 4 ID : 37135168487

Status : Answered

Chosen Option : 1

Q.10

The dual of a statement 'Mangoes are delicious but expensive' is

Ans  1.

Mangoes are delicious or Mangoes are not expensive.

 2.

Mangoes are not delicious and Mangoes are not expensive.

 3.

Mangoes are delicious or Mangoes are expensive.

 4.

Mangoes are delicious and Mangoes are expensive.

Question Type : **MCQ**

Question ID : 37135117134

Option 1 ID : 37135168536

Option 2 ID : 37135168535

Option 3 ID : 37135168534

Option 4 ID : 37135168533

Status : **Answered**

Chosen Option : 3

Q.11

If $AX = B$, where $A = \begin{bmatrix} 1 & 3 & 3 \\ 1 & 4 & 4 \\ 1 & 3 & 4 \end{bmatrix}$, $X = \begin{bmatrix} x \\ y \\ z \end{bmatrix}$ and $B = \begin{bmatrix} 12 \\ 15 \\ 13 \end{bmatrix}$, then $x^2 + y^2 + z^2 =$

Ans

 1. 14

 2. 19

 3. 21

 4. 6

Question Type : MCQ

Question ID : 37135117119

Option 1 ID : 37135168474

Option 2 ID : 37135168476

Option 3 ID : 37135168475

Option 4 ID : 37135168473

Status : Answered

Chosen Option : 1

Q.12 The bacteria increases at the rate proportional to the number of bacteria present. If the original number 'N' doubles in 4 hours then the number of bacteria in 12 hours will be

Ans

 1. 3 N

 2. 4 N

 3. 6 N

 4. 8 N

Question Type : MCQ

Question ID : 37135117147

Option 1 ID : 37135168587

Option 2 ID : 37135168588

Option 3 ID : 37135168586

Option 4 ID : 37135168585

Status : Answered

Chosen Option : 4

Q.13 The angle between the lines $\vec{r} = (2\hat{i} + \hat{j} - 3\hat{k}) + \lambda(\hat{i} - \hat{j} + \hat{k})$ and $\frac{x-1}{1} = \frac{y+2}{3} = \frac{z-3}{2}$ is

Ans

 1. $\frac{\pi}{6}$

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

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

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

Question Type : MCQ

Question ID : 37135117139

Option 1 ID : 37135168554

Option 2 ID : 37135168553

Option 3 ID : 37135168555

Option 4 ID : 37135168556

Status : Answered

Chosen Option : 4

Q.14 The equation of the line passing through the point (1, 2, 3) and perpendicular to the

lines $\frac{x-1}{1} = \frac{y-2}{2} = \frac{z-3}{3}$ and $\vec{r} = \lambda(-3\hat{i} + 2\hat{j} + 5\hat{k})$ is

Ans  1.

$$\vec{r} = (\hat{i} + 2\hat{j} + 3\hat{k}) + \lambda(2\hat{i} + 7\hat{j} - 4\hat{k})$$

 2.

$$\vec{r} = (\hat{i} + 2\hat{j} + 3\hat{k}) + \lambda(2\hat{i} + 7\hat{j} + 4\hat{k})$$

 3.

$$\vec{r} = (\hat{i} + 2\hat{j} + 3\hat{k}) + \lambda(2\hat{i} - 7\hat{j} - 4\hat{k})$$

 4.

$$\vec{r} = (\hat{i} + 2\hat{j} + 3\hat{k}) + \lambda(2\hat{i} - 7\hat{j} + 4\hat{k})$$

Question Type : MCQ

Question ID : 37135117146

Option 1 ID : 37135168582

Option 2 ID : 37135168581

Option 3 ID : 37135168584

Option 4 ID : 37135168583

Status : Answered

Chosen Option : 4

Q.15

The derivative of $\cot^{-1} x$ w.r.t $\log(1 + x^2)$ is

Ans

 1. $-2x$

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

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

 4. $2x$

Question Type : MCQ

Question ID : 37135117144

Option 1 ID : 37135168575

Option 2 ID : 37135168576

Option 3 ID : 37135168574

Option 4 ID : 37135168573

Status : Answered

Chosen Option : 2

Q.16

The sum of first four terms of a G.P. is 160 and the common ratio is 3, then the 4th term is

Ans

 1. 118

 2. 100

 3. 108

 4. 102

Question Type : MCQ

Question ID : 37135117120

Option 1 ID : 37135168479

Option 2 ID : 37135168478

Option 3 ID : 37135168477

Option 4 ID : 37135168480

Status : Marked For Review

Chosen Option : 3

Q.17

If the radius of a circular blot of oil is increasing at the rate of 2 cm/min, then the rate of change of its area when its radius is 3 cms is

Ans

 1. $10\pi \text{ cm}^2/\text{min}$

 2. $12\pi \text{ cm}^2/\text{min}$

 3. $14\pi \text{ cm}^2/\text{min}$

 4. $16\pi \text{ cm}^2/\text{min}$

Question Type : MCQ

Question ID : 37135117132

Option 1 ID : 37135168525

Option 2 ID : 37135168526

Option 3 ID : 37135168527

Option 4 ID : 37135168528

Status : Answered

Chosen Option : 2

Q.18

If $\int_1^k (3x^2 + 2x + 1) dx = 11$, then k =

Ans

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

 2. -2

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

 4. 2

Question Type : MCQ

Question ID : 37135117115

Option 1 ID : 37135168459

Option 2 ID : 37135168457

Option 3 ID : 37135168460

Option 4 ID : 37135168458

Status : Answered

Chosen Option : 4

Q.19

If L.M.V.T. is applicable for the function $f(x) = x + \frac{1}{x}$, $x \in [1, 3]$, then $c =$

Ans

 1. $-\sqrt{3}$

 2. $\sqrt{3}$

 3. 2

 4. $\sqrt{2}$

Question Type : MCQ

Question ID : 37135117127

Option 1 ID : 37135168508

Option 2 ID : 37135168506

Option 3 ID : 37135168505

Option 4 ID : 37135168507

Status : Answered

Chosen Option : 2

Q.20

The separate equations of the lines represented by $4x^2 - y^2 + 2x + y = 0$ are

Ans

 1.

$$2x - 2y + 1 = 0, x + 2y = 0$$

 2.

$$2x - y + 1 = 0, 2x + y = 0$$

 3.

$$2x - y + 1 = 0, 2x - y = 0$$

 4.

$$2x - y = 0, 2x + y + 1 = 0$$

Question Type : MCQ

Question ID : 37135117106

Option 1 ID : 37135168423

Option 2 ID : 37135168422

Option 3 ID : 37135168421

Option 4 ID : 37135168424

Status : Answered

Chosen Option : 2

Q.21 A body is heated to 110°C and placed in air at 10°C . After 1 hour its temperature is 60°C . The additional time required for it to cool to 30°C is

Ans

 1. $\left(\frac{\log 2}{\log 5} + 1\right)$ hours

 2. $\left(\frac{\log 5}{\log 2}\right)$ hours

 3. $\left(\frac{\log 5}{\log 2} - 1\right)$ hours

 4. $\left(\frac{\log 2}{\log 5}\right)$ hours

Question Type : **MCQ**

Question ID : **37135117126**

Option 1 ID : **37135168503**

Option 2 ID : **37135168502**

Option 3 ID : **37135168501**

Option 4 ID : **37135168504**

Status : **Marked For Review**

Chosen Option : **2**

Q.22

If a function $f: R \rightarrow R$ is defined by $f(x) = \frac{4x}{5} + 3$, then $f^{-1}(x) =$

Ans

 1. $\frac{5(x+3)}{4}$

 2. $\frac{5(x-3)}{4}$

 3. $\frac{4(x+3)}{5}$

 4. $\frac{4(x-3)}{5}$

Question Type : MCQ

Question ID : 37135117104

Option 1 ID : 37135168416

Option 2 ID : 37135168413

Option 3 ID : 37135168415

Option 4 ID : 37135168414

Status : Answered

Chosen Option : 2

Q.23

$$\int \frac{dx}{1 + \sqrt{x}} =$$

Ans

✓₁ $2\sqrt{x} - 2 \log |1 + \sqrt{x}| + c$

✗₂ $\sqrt{x} + \log |1 + \sqrt{x}| + c$

✗₃ $2\sqrt{x} + \log |1 + \sqrt{x}| + c$

✗₄ $\sqrt{x} - \log |1 + \sqrt{x}| + c$

Question Type : MCQ

Question ID : 37135117142

Option 1 ID : 37135168568

Option 2 ID : 37135168566

Option 3 ID : 37135168567

Option 4 ID : 37135168565

Status : Answered

Chosen Option : 1

Q.24

$$\int_{-2}^2 [x] dx =$$

where $[x]$ is the greatest integer function

Ans

☒ 1. 2

☒ 2. 4

☒ 3. -2

☒ 4. 0

Question Type : MCQ

Question ID : 37135117112

Option 1 ID : 37135168445

Option 2 ID : 37135168447

Option 3 ID : 37135168446

Option 4 ID : 37135168448

Status : Answered

Chosen Option : 3

Q.25 $\int \frac{x^2+1}{(x-3)(x-2)} dx = Px + Q \log|x-3| + R \log|x-2| + c$, where c is constant of

integration, then the values of P, Q, R are , respectively

Ans

 1. 0, 10, 5

 2. 0, 10, -5

 3. 1, 10, 5

 4. 1, 10, -5

Question Type : MCQ

Question ID : 37135117113

Option 1 ID : 37135168449

Option 2 ID : 37135168450

Option 3 ID : 37135168451

Option 4 ID : 37135168452

Status : Answered

Chosen Option : 1

Q.26 If $f: R \rightarrow R$ is given by $f(x) = 7x + 8$ and $f^{-1}(12) = \frac{k}{7}$, then the value of k is

Ans

 1. 7

 2. 1

 3. 4

 4. 8

Question Type : MCQ

Question ID : 37135117123

Option 1 ID : 37135168491

Option 2 ID : 37135168489

Option 3 ID : 37135168490

Option 4 ID : 37135168492

Status : Answered

Chosen Option : 3

Q.27

The negation of the statement "If $5 < 7$ and $7 > 2$, then $5 > 2$ " is

Ans

✓ 1. $5 < 7$ and $7 > 2$ and $5 \leq 2$

✗ 2. $5 < 7$ and $7 > 2$ or $5 < 2$

✗ 3. $5 < 7$ and $7 > 2$ and $5 > 2$

✗ 4. $5 < 7$ and $7 > 2$ or $5 \leq 2$

Question Type : MCQ

Question ID : 37135117145

Option 1 ID : 37135168580

Option 2 ID : 37135168578

Option 3 ID : 37135168577

Option 4 ID : 37135168579

Status : Answered

Chosen Option : 1

Q.28

If B is end point of minor axis of the ellipse $b^2x^2 + a^2y^2 = a^2b^2$ ($a > b$) and S and S' are foci of ellipse such that $\triangle SBS'$ is an equilateral triangle, then eccentricity $e =$

Ans

✓ 1. $\frac{1}{2}$

✗ 2. $\frac{1}{3}$

✗ 3. $\frac{3}{5}$

✗ 4. $\frac{4}{5}$

Question Type : MCQ

Question ID : 37135117133

Option 1 ID : 37135168529

Option 2 ID : 37135168530

Option 3 ID : 37135168531

Option 4 ID : 37135168532

Status : Answered

Chosen Option : 1

Q.29

If a, b, c are distinct positive numbers and vectors $a\hat{i} + a\hat{j} + c\hat{k}, \hat{i} + \hat{k}$
and $c\hat{i} + c\hat{j} + b\hat{k}$ lie in a plane, then

Ans

 1. c is A.M. of a and b

 2. $c^2 = 0$

 3. c is H.M. of a and b

 4. c is G.M. of a and b

Question Type : MCQ

Question ID : 37135117125

Option 1 ID : 37135168497

Option 2 ID : 37135168500

Option 3 ID : 37135168499

Option 4 ID : 37135168498

Status : Answered

Chosen Option : 4

Q.30

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

Ans

 1. 3, 2

 2. 2, 3

 3. 2, 2

 4. 3, 3

Question Type : MCQ

Question ID : 37135117135

Option 1 ID : 37135168538

Option 2 ID : 37135168537

Option 3 ID : 37135168539

Option 4 ID : 37135168540

Status : Answered

Chosen Option : 2

Q.31

The derivative of $\sin^{-1} \left(\frac{\sqrt{1+x} + \sqrt{1-x}}{2} \right)$ w.r.t. $\cos^{-1} x$ is

Ans

✓ 1. $\frac{1}{2}$

✗ 2. $-\frac{1}{2}$

✗ 3. -1

✗ 4. 1

Question Type : MCQ

Question ID : 37135117137

Option 1 ID : 37135168547

Option 2 ID : 37135168548

Option 3 ID : 37135168545

Option 4 ID : 37135168546

Status : Answered

Chosen Option : 1

Q.32

If $x^2 + y^2 = t + \frac{1}{t}$, $x^4 + y^4 = t^2 + \frac{1}{t^2}$ then $\frac{dy}{dx} =$

Ans

✓ 1. $-\frac{y}{x}$

✗ 2. $\frac{y}{x}$

✗ 3. $\frac{x}{2y}$

✗ 4. $-\frac{x}{2y}$

Question Type : MCQ

Question ID : 37135117141

Option 1 ID : 37135168562

Option 2 ID : 37135168563

Option 3 ID : 37135168561

Option 4 ID : 37135168564

Status : Answered

Chosen Option : 1

Q.33

The distance of a point $(1, 2, -1)$ from the plane $x - 2y + 4z + 10 = 0$ is

Ans

 1. $\frac{3}{\sqrt{7}}$ units

 2. $\frac{\sqrt{3}}{7}$ units

 3. $\sqrt{\frac{7}{3}}$ units

 4. $\sqrt{\frac{3}{7}}$ units

Question Type : MCQ

Question ID : 37135117136

Option 1 ID : 37135168541

Option 2 ID : 37135168543

Option 3 ID : 37135168542

Option 4 ID : 37135168544

Status : Answered

Chosen Option : 4

Q.34

If $f'(x) = k(\cos x - \sin x)$, $f'(0) = 3$, $f\left(\frac{\pi}{2}\right) = 15$, then $f(x) =$

Ans

✓ 1. $3(\sin x + \cos x) + 12$

✗ 2. $3(\sin x + \cos x) - 12$

✗ 3. $-3(\sin x + \cos x) - 12$

✗ 4. $12(\sin x + \cos x) + 3$

Question Type : MCQ

Question ID : 37135117117

Option 1 ID : 37135168465

Option 2 ID : 37135168467

Option 3 ID : 37135168468

Option 4 ID : 37135168466

Status : Answered

Chosen Option : 1

Q.35 The direction ratios of the line perpendicular to the lines having direction ratios 2, 3, 1 and 1, 2, 1 are

Ans

 1. -2, 1, 1

 2. 1, 1, 1

 3. 1, -1, 1

 4. 2, 2, -2

Question Type : MCQ

Question ID : 37135117149

Option 1 ID : 37135168595

Option 2 ID : 37135168593

Option 3 ID : 37135168594

Option 4 ID : 37135168596

Status : Answered

Chosen Option : 3

Q.36

If ω is a complex cube root of unity and $A = \begin{bmatrix} \omega & 0 \\ 0 & \omega \end{bmatrix}$, then $A^{-1} =$

Ans

✓ 1. A^2

✗ 2. $2A$

✗ 3. $-A$

✗ 4. A

Question Type : MCQ

Question ID : 37135117140

Option 1 ID : 37135168560

Option 2 ID : 37135168558

Option 3 ID : 37135168559

Option 4 ID : 37135168557

Status : Answered

Chosen Option : 3

Q.37 The c.d.f. $F(x)$ of discrete r.v. X is given by

X	-3	-1	0	1	3	5	7	9
$F(X)$	0.1	0.3	0.5	0.65	0.75	0.85	0.90	1

then $P[X = 3] =$

Ans

 1. 0.85

 2. 0.10

 3. 0.75

 4. 0.65

Question Type : MCQ

Question ID : 37135117131

Option 1 ID : 37135168524

Option 2 ID : 37135168521

Option 3 ID : 37135168522

Option 4 ID : 37135168523

Status : Answered

Chosen Option : 2

Q.38

The joint equation of bisectors of the angle between the lines represented by

$$3x^2 + 2xy - y^2 = 0 \text{ is}$$

Ans

✓₁ $x^2 - 4xy - y^2 = 0$

✗₂ $x^2 + 4xy - y^2 = 0$

✗₃ $x^2 - 4xy + y^2 = 0$

✗₄ $x^2 + 4xy + y^2 = 0$

Question Type : MCQ

Question ID : 37135117103

Option 1 ID : 37135168412

Option 2 ID : 37135168410

Option 3 ID : 37135168411

Option 4 ID : 37135168409

Status : Answered

Chosen Option : 1

Q.39 If $\vec{a}$, $\vec{b}$, $\vec{c}$ are nonzero vectors along the coterminus edges of a parallelopiped with volume 7 cubic units, then the volume of a parallelopiped with $\vec{a} + \vec{b}$, $\vec{b} + \vec{c}$, $\vec{c} + \vec{a}$ as the coterminus edges is

Ans

 1. 49 cubic units

 2. 2 cubic units

 3. 14 cubic units

 4. 7 cubic units

Question Type : MCQ

Question ID : 37135117130

Option 1 ID : 37135168519

Option 2 ID : 37135168520

Option 3 ID : 37135168518

Option 4 ID : 37135168517

Status : Answered

Chosen Option : 3

Q.40

If $f(x) = \frac{4\sin \pi x}{5x}$ for $x \neq 0$

$= 2k$ for $x = 0$

is continuous at $x = 0$, then the value of k is

Ans

✓ 1. $\frac{2\pi}{5}$

✗ 2. $\frac{\pi}{5}$

✗ 3. $\frac{\pi}{10}$

✗ 4. $\frac{4\pi}{5}$

Question Type : MCQ

Question ID : 37135117150

Option 1 ID : 37135168598

Option 2 ID : 37135168600

Option 3 ID : 37135168599

Option 4 ID : 37135168597

Status : Answered

Chosen Option : 1

Q.41

If $3\sin^2x - 8\sin x + 4 = 0$, $x \in \left(\frac{\pi}{2}, \pi\right)$, then $\tan x =$

Ans

 1. $-\frac{\sqrt{5}}{2}$

 2. $\frac{2}{\sqrt{5}}$

 3. $-\frac{2}{\sqrt{5}}$

 4. $\frac{\sqrt{5}}{2}$

Question Type : MCQ

Question ID : 37135117143

Option 1 ID : 37135168572

Option 2 ID : 37135168569

Option 3 ID : 37135168570

Option 4 ID : 37135168571

Status : Answered

Chosen Option : 3

Q.42

If the points A (2, 1, -1), B (0, -1, 0), C (4, 0, 4) and D (2, 0, x) are coplanar, then $x =$

Ans

 1. 2

 2. 1

 3. 4

 4. 3

Question Type : MCQ

Question ID : 37135117101

Option 1 ID : 37135168402

Option 2 ID : 37135168401

Option 3 ID : 37135168404

Option 4 ID : 37135168403

Status : Answered

Chosen Option : 2

Q.43

The area of the region bounded by the parabola $x^2 = 16y$, $y = 1$, $y = 4$ and the Y-axis lying in the first quadrant is

Ans

 1. $\frac{55}{3}$ sq. units

 2. $\frac{56}{3}$ sq. units

 3. $\frac{52}{3}$ sq. units

 4. $\frac{53}{3}$ sq. units

Question Type : **MCQ**

Question ID : **37135117111**

Option 1 ID : **37135168442**

Option 2 ID : **37135168441**

Option 3 ID : **37135168444**

Option 4 ID : **37135168443**

Status : **Answered**

Chosen Option : **2**

Q.44

$$\operatorname{cosec} 2\theta - \cot 2\theta =$$

Ans

✓ 1. $\tan \theta$

✗ 2. $\sin 2\theta$

✗ 3. $\cos \theta$

✗ 4. $\tan 2\theta$

Question Type : MCQ

Question ID : 37135117128

Option 1 ID : 37135168511

Option 2 ID : 37135168509

Option 3 ID : 37135168510

Option 4 ID : 37135168512

Status : Answered

Chosen Option : 1

Q.45

The eccentricity of a rectangular hyperbola is

Ans

 1. 2

 2. $2\sqrt{2}$

 3. 1

 4. $\sqrt{2}$

Question Type : MCQ

Question ID : 37135117109

Option 1 ID : 37135168434

Option 2 ID : 37135168436

Option 3 ID : 37135168433

Option 4 ID : 37135168435

Status : Answered

Chosen Option : 4

Q.46

If the p.m.f. of a r.v. X is

x	0	1	2
$P(X = x)$	q^2	$2pq$	p^2

then, the standard deviation of X is (given $p + q = 1$)

Ans

 1. $2\sqrt{q}$

 2. $\sqrt{2pq}$

 3. $2\sqrt{p}$

 4. $\sqrt{pq}$

Question Type : MCQ

Question ID : 37135117105

Option 1 ID : 37135168418

Option 2 ID : 37135168420

Option 3 ID : 37135168417

Option 4 ID : 37135168419

Status : Answered

Chosen Option : 2

Q.47 If A and B are two angles such that $A, B \in (0, \pi)$ and they are not supplementary angles such that $\sin A - \sin B = 0$, then

Ans

 1. $A - B = \frac{\pi}{3}$

 2. $A - B = \frac{\pi}{2}$

 3. $A = B$

 4. $A \neq B$

Question Type : MCQ

Question ID : 37135117116

Option 1 ID : 37135168461

Option 2 ID : 37135168464

Option 3 ID : 37135168463

Option 4 ID : 37135168462

Status : Answered

Chosen Option : 2

Q.48 The co-ordinates of the point where the line $\frac{x-1}{2} = \frac{y-2}{-3} = \frac{z+3}{4}$ meet the plane

$$2x + 4y - z = 1 \text{ are}$$

Ans

 1. $(3, -1, -1)$

 2. $(3, -1, 1)$

 3. $(3, 1, -1)$

 4. $(-2, 1, -1)$

Question Type : MCQ

Question ID : 37135117129

Option 1 ID : 37135168513

Option 2 ID : 37135168516

Option 3 ID : 37135168514

Option 4 ID : 37135168515

Status : Answered

Chosen Option : 2

Q.49

The general solutions of $\sin^2 x \cdot \sec x = \tan x - \sin x + 1$ is

Ans  1.

$$x = n\pi + (-1)^n \frac{\pi}{4} \text{ or } x = m\pi + \frac{3\pi}{4}; \quad m, n \in \mathbb{Z}$$

 2.

$$x = n\pi + (-1)^n \frac{\pi}{2} \text{ or } x = m\pi + \frac{3\pi}{4}; \quad m, n \in \mathbb{Z}$$

 3.

$$x = n\pi + (-1)^n \frac{\pi}{2} \text{ or } x = m\pi + \frac{5\pi}{4}; \quad m, n \in \mathbb{Z}$$

 4.

$$x = n\pi + (-1)^n \frac{\pi}{4} \text{ or } x = m\pi + \frac{5\pi}{4}; \quad m, n \in \mathbb{Z}$$

Question Type : MCQ

Question ID : 37135117114

Option 1 ID : 37135168455

Option 2 ID : 37135168453

Option 3 ID : 37135168454

Option 4 ID : 37135168456

Status : Marked For Review

Chosen Option : 1

Q.50

Given $X \sim B(n, p)$, If $E(X)=4$ and $\text{Var}(X)=2.4$, then $n =$

Ans

 1. 20

 2. 15

 3. 5

 4. 10

Question Type : MCQ

Question ID : 37135117107

Option 1 ID : 37135168428

Option 2 ID : 37135168427

Option 3 ID : 37135168425

Option 4 ID : 37135168426

Status : Answered

Chosen Option : 4