Section : Physics

Q.1 Energy of the incident photon on the metal surface is ' 3W ' and then ' 5W ', where 'W' is the work function for that metal. The ratio of velocities of emitted photoelectrons is

Ans

✔ 1. $1:\sqrt{2}$

✘ 2. $1:1$

✘ 3. $1:2$

✘ 4. $1:4$

Question Type :	**MCQ**
Question ID :	**37135116735**
Option 1 ID :	**37135166937**
Option 2 ID :	**37135166939**
Option 3 ID :	**37135166938**
Option 4 ID :	**37135166940**
Status :	**Answered**
Chosen Option :	**1**

Q.2 In Young's double slit experiment, green light is incident on the two slits. The interference pattern is observed on a screen. Which one of the following changes would cause the observed fringes to be more closely spaced?

Ans

✗ 1.

Reducing the separation between the slits.

✓ 2.

Using blue light instead of green light.

✗ 3.

Using red light instead of green light.

✗ 4.

Moving the screen away from the slits.

Question Type : **MCQ**
Question ID : **37135116709**
Option 1 ID : **37135166833**
Option 2 ID : **37135166834**
Option 3 ID : **37135166835**
Option 4 ID : **37135166836**
Status : **Answered**
Chosen Option : **3**

Q.3 The capacitance of a parallel plate capacitor with air as medium is 3μF. With the introduction of a dielectric medium between the plates, the capacitance becomes 15 μF. The permittivity of the medium in SI unit is $[\epsilon_0 = 8 \cdot 85 \times 10^{-12}$ SI unit]

Ans

✗ 1. 15

✗ 2. $8{\cdot}845 \times 10^{-11}$

✓ 3. $0{\cdot}4425 \times 10^{-10}$

✗ 4. 5

Question Type : **MCQ**
Question ID : **37135116748**
Option 1 ID : **37135166990**
Option 2 ID : **37135166992**
Option 3 ID : **37135166991**
Option 4 ID : **37135166989**
Status : **Answered**
Chosen Option : **3**

Q.4 A potentiometer wire is 4 m long and potential difference of 3 V is maintained between the ends. The e.m.f. of the cell which balances against a length of 100 cm of the potentiometer wire is

Ans

1. 0·50 V

2. 0·60 V

3. 0·75 V

4. 0·25 V

Question Type : **MCQ**
Question ID : **37135116744**
Option 1 ID : **37135166975**
Option 2 ID : **37135166974**
Option 3 ID : **37135166973**
Option 4 ID : **37135166976**
Status : **Answered**
Chosen Option : **3**

Q.5 The mass of earth is 81 times the mass of the moon and the distance between their centres is R. The distance from the centre of the earth where gravitational force will be zero is

Ans

✔ 1. $\frac{9R}{10}$

✘ 2. $\frac{R}{2}$

✘ 3. $\frac{R}{81}$

✘ 4. $\frac{R}{4}$

Question Type : **MCQ**
Question ID : **37135116707**
Option 1 ID : **37135166828**
Option 2 ID : **37135166825**
Option 3 ID : **37135166827**
Option 4 ID : **37135166826**
Status : **Answered**
Chosen Option : **1**

Q.6 Two wires A and B of equal lengths are connected in left and right gap of a metre bridge, null point is obtained at 40 cm from left end. Diameters of the wires A and B are in the ratio 3:1 . The ratio of specific resistance of A to that of B is

Ans

✘ 1. 8 : 1

✔ 2. 6 : 1

✘ 3. 4 : 1

✘ 4. 3 : 1

Question Type : **MCQ**
Question ID : **37135116702**
Option 1 ID : **37135166808**
Option 2 ID : **37135166807**
Option 3 ID : **37135166806**
Option 4 ID : **37135166805**
Status : **Answered**
Chosen Option : **2**

Q.7 The ratio of speed of an electron in the ground state in the Bohr's first orbit of hydrogen atom to velocity of light (c) is
(h = Planck's constant, ϵ_0 = permittivity of free space, e = charge on electron)

Ans

✗ 1. $\frac{2e^2\epsilon_0}{hc}$

✗ 2. $\frac{2\epsilon_0 hc}{e^2}$

✓ 3. $\frac{e^2}{2\epsilon_0 hc}$

✗ 4. $\frac{e^3}{2\epsilon_0 hc}$

Question Type : **MCQ**
Question ID : **37135116719**
Option 1 ID : **37135166873**
Option 2 ID : **37135166874**
Option 3 ID : **37135166875**
Option 4 ID : **37135166876**
Status : **Answered**
Chosen Option : **3**

Q.8

An iron rod is placed parallel to magnetic field of intensity 2000 $\frac{A}{m}$. The magnetic flux through the rod is 6 x 10^{-4} Wb and its cross-sectional area is $3cm^2$. The magnetic permeability of the rod in $\frac{Wb}{A-m}$ is

Ans

1. 10^{-1}

2. 10^{-4}

3. 10^{-3}

4. 10^{-2}

Question Type : **MCQ**
Question ID : **37135116725**
Option 1 ID : **37135166900**
Option 2 ID : **37135166897**
Option 3 ID : **37135166898**
Option 4 ID : **37135166899**
Status : **Answered**
Chosen Option : **3**

Q.9 In non - uniform circular motion, the ratio of tangential to radial acceleration is (r = radius, $\propto$ = angular acceleration, V = linear velocity)

Ans

1. $\frac{r\propto}{V}$
2. $\frac{V^2}{r\propto}$
3. $\frac{r^2\propto}{V^2}$
4. $\frac{r\propto^2}{V^2}$

Question Type : MCQ
Question ID : 37135116743
Option 1 ID : 37135166971
Option 2 ID : 37135166972
Option 3 ID : 37135166970
Option 4 ID : 37135166969
Status : Answered
Chosen Option : 3

Q.10 A charged particle is moving in a uniform magnetic field in a circular path of radius 'R'. When the energy of the particle becomes three times the original, the new radius will be

Ans

1. $\frac{R}{3}$
2. R
3. $3R$
4. $\sqrt{3}\,R$

Question Type : MCQ
Question ID : 37135116739
Option 1 ID : 37135166956
Option 2 ID : 37135166954
Option 3 ID : 37135166955
Option 4 ID : 37135166953
Status : Answered
Chosen Option : 4

Q.11 If there is a change of angular momentum from 1J-s to 4J-s in 4 second, then the torque is

Ans

1. $1\ \mathrm{J}$

2. $\left(\frac{3}{4}\right)\mathrm{J}$

3. $\left(\frac{5}{4}\right)\mathrm{J}$

4. $\left(\frac{4}{3}\right)\mathrm{J}$

Question Type : **MCQ**
Question ID : **37135116729**
Option 1 ID : **37135166914**
Option 2 ID : **37135166913**
Option 3 ID : **37135166915**
Option 4 ID : **37135166916**
Status : **Answered**
Chosen Option : **2**

Q.12 A particle is moving in a circle of radius 'R' with constant speed 'V'. The magnitude of average acceleration after half revolution is

Ans

✔ 1. $\frac{2V^2}{\pi R}$

✘ 2. $\frac{2\pi}{RV^2}$

✘ 3. $\frac{2V}{\pi R^2}$

✘ 4. $\frac{2R}{\pi V}$

Question Type : **MCQ**
Question ID : **37135116710**
Option 1 ID : **37135166837**
Option 2 ID : **37135166840**
Option 3 ID : **37135166838**
Option 4 ID : **37135166839**
Status : **Answered**
Chosen Option : **1**

Q.13 The extension in a wire obeying Hooke's law is 'x'. The speed of sound in the stretched wire is 'V'. If the extension in the wire is increased to 4x, then the speed of sound in a wire is

Ans

✘ 1. V

✘ 2. 2·5 V

✔ 3. 2 V

✘ 4. 1·5 V

Question Type : **MCQ**
Question ID : **37135116726**
Option 1 ID : **37135166901**
Option 2 ID : **37135166904**
Option 3 ID : **37135166903**
Option 4 ID : **37135166902**
Status : **Answered**
Chosen Option : **1**

Q.14 Two waves $Y_1 = 0 \cdot 25 \sin 316\, t$ and
$Y_2 = 0 \cdot 25 \sin 310\, t$
are propagating along the same direction. The number of beats produced per second are

Ans

✗ 1. $\frac{\pi}{2}$

✗ 2. $\frac{2}{\pi}$

✗ 3. $\frac{\pi}{3}$

✓ 4. $\frac{3}{\pi}$

Question Type : **MCQ**
Question ID : **37135116718**
Option 1 ID : **37135166872**
Option 2 ID : **37135166871**
Option 3 ID : **37135166870**
Option 4 ID : **37135166869**
Status : **Answered**
Chosen Option : **4**

Q.15 A body is thrown from the surface of the earth with velocity 'V' $\frac{m}{s}$. The maximum height above the earth's surface upto which it will reach is

(R = radius of earth, g = acceleration due to gravity)

Ans

✗ 1. $\frac{VR^2}{gR-V}$

✓ 2. $\frac{V^2R}{2gR-V^2}$

✗ 3. $\frac{2gR}{V^2(R-1)}$

✗ 4. $\frac{VR}{2gR-V}$

Question Type : **MCQ**
Question ID : **37135116740**
Option 1 ID : **37135166957**
Option 2 ID : **37135166958**
Option 3 ID : **37135166960**
Option 4 ID : **37135166959**
Status : **Answered**
Chosen Option : **2**

Q.16 A body of mass 2 kg is acted upon by two forces each of magnitude 1N and inclined at 60° with each other. The acceleration of the body in $\frac{m}{s}$ is $[\cos 60° = 0{\cdot}5]$

Ans

1. $\sqrt{0 \cdot 35}$
2. $\sqrt{0 \cdot 65}$
3. $\sqrt{0 \cdot 75}$
4. $\sqrt{0 \cdot 20}$

Question Type : **MCQ**
Question ID : **37135116713**
Option 1 ID : **37135166850**
Option 2 ID : **37135166851**
Option 3 ID : **37135166852**
Option 4 ID : **37135166849**
Status : **Answered**
Chosen Option : **3**

Q.17 Two rods of same material and volume having circular cross-section are subjected to tension T. Within the elastic limit, same force is applied to both the rods. Diameter of the first rod is half of the second rod, then the extensions of first rod to second rod will be in the ratio

Ans

1. 4 : 1
2. 16 : 1
3. 32 : 1
4. 2 : 1

Question Type : **MCQ**
Question ID : **37135116745**
Option 1 ID : **37135166978**
Option 2 ID : **37135166979**
Option 3 ID : **37135166980**
Option 4 ID : **37135166977**
Status : **Answered**
Chosen Option : **1**

Q.18

A coil of 'n' turns and resistance 'R' Ω is connected in series with a resistance $\frac{R}{2}$. The combination is moved for time 't' second through magnetic flux ϕ_1 to ϕ_2. The induced current in the circuit is

Ans

1. $\frac{2n(\phi_1-\phi_2)}{3Rt}$

2. $\frac{n(\phi_1-\phi_2)}{3Rt}$

3. $\frac{n(\phi_1-\phi_2)}{Rt}$

4. $\frac{2n(\phi_1-\phi_2)}{Rt}$

Question Type : **MCQ**
Question ID : **37135116746**
Option 1 ID : **37135166983**
Option 2 ID : **37135166981**
Option 3 ID : **37135166984**
Option 4 ID : **37135166982**
Status : **Answered**
Chosen Option : **1**

Q.19 In amplitude modulation,

Ans

✗ 1. both amplitude and frequency do not change according to information signal.

✗ 2. amplitude remains constant but frequency changes according to information signal.

✗ 3. both amplitude and frequency change according to information signal.

✓ 4. amplitude of carrier wave changes according to information signal.

Question Type : **MCQ**
Question ID : **37135116728**
Option 1 ID : **37135166911**
Option 2 ID : **37135166912**
Option 3 ID : **37135166910**
Option 4 ID : **37135166909**
Status : **Answered**
Chosen Option : **4**

Q.20 When a small amount of impurity atoms are added to a semiconductor then generally its resistivity

Ans

✓ 1. decreases.

✗ 2. increases.

✗ 3. does not change.

✗ 4. may increase or decrease depending upon the percentage of doping.

Question Type : **MCQ**
Question ID : **37135116712**
Option 1 ID : **37135166846**
Option 2 ID : **37135166845**
Option 3 ID : **37135166847**
Option 4 ID : **37135166848**
Status : **Answered**
Chosen Option : **2**

Q.21 Water rises in a capillary tube of radius r upto a height 'h'. The mass of water in a capillary is 'm'. The mass of water that will rise in a capillary of radius $\frac{r}{4}$ will be

Ans

✔ 1. $\frac{m}{4}$

✗ 2. $\frac{4}{m}$

✗ 3. $4m$

✗ 4. m

Question Type : **MCQ**
Question ID : **37135116701**
Option 1 ID : **37135166801**
Option 2 ID : **37135166804**
Option 3 ID : **37135166803**
Option 4 ID : **37135166802**
Status : **Answered**
Chosen Option : **3**

Q.22 An ammeter of resistance 20Ω gives full scale deflection when 1 mA current flows through it. What is the maximum current that can be measured by connecting 4 resistors each of 16 Ω in parallel with the meter?

Ans

✔ 1. 6 mA

✗ 2. 8 mA

✗ 3. 4 mA

✗ 4. 2 mA

Question Type : **MCQ**
Question ID : **37135116721**
Option 1 ID : **37135166883**
Option 2 ID : **37135166884**
Option 3 ID : **37135166882**
Option 4 ID : **37135166881**
Status : **Answered**
Chosen Option : **1**

Q.23 The magnifying power of a telescope is high if its objective and eyepiece have respectively

Ans

✔ 1. large and small focal length.

✘ 2. small focal lengths.

✘ 3. large focal lengths.

✘ 4. small and large focal length.

Question Type : **MCQ**
Question ID : **37135116742**
Option 1 ID : **37135166966**
Option 2 ID : **37135166968**
Option 3 ID : **37135166967**
Option 4 ID : **37135166965**
Status : **Answered**
Chosen Option : **4**

Q.24 A solid cylinder of radius 'R' and mass 'M' rolls down an inclined plane of height 'h'. When it reaches the bottom of the plane, its rotational kinetic energy is
(g = acceleration due to gravity)

Ans

✔ 1. $\frac{Mgh}{3}$

✘ 2. Mgh

✘ 3. $\frac{Mgh}{2}$

✘ 4. $\frac{Mgh}{4}$

Question Type : **MCQ**
Question ID : **37135116703**
Option 1 ID : **37135166811**
Option 2 ID : **37135166809**
Option 3 ID : **37135166810**
Option 4 ID : **37135166812**
Status : **Answered**
Chosen Option : **1**

Q.25 A monoatomic gas of presuure 'P' having volume 'V' expands isothermally to a volume '2V' and then adiabatically to a volume '16V'. The final pressure of the gas is (ratio of specific heats $= \frac{5}{3}$)

Ans

✗ 1. $\frac{P}{16}$

✗ 2. $\frac{P}{8}$

✗ 3. $\frac{P}{32}$

✓ 4. $\frac{P}{64}$

Question Type : **MCQ**
Question ID : **37135116705**
Option 1 ID : **37135166818**
Option 2 ID : **37135166817**
Option 3 ID : **37135166819**
Option 4 ID : **37135166820**
Status : **Answered**
Chosen Option : **4**

Q.26 A simple pendulum of length 'L' has mass 'm' and it oscillates freely with amplitude 'A'.
At extreme position, its potential energy is (g =acceleration due to gravity)

Ans

✔ 1. $\frac{mgA^2}{2L}$

✘ 2. $\frac{mgA^2}{L}$

✘ 3. $\frac{mgA}{L}$

✘ 4. $\frac{mgA}{2L}$

Question Type : **MCQ**
Question ID : **37135116714**
Option 1 ID : **37135166855**
Option 2 ID : **37135166853**
Option 3 ID : **37135166856**
Option 4 ID : **37135166854**
Status : **Answered**
Chosen Option : **1**

Q.27 A ray of light is incident at an angle ' i ' on one face of prism of small angle 'A' and emerges normally from the other surface. ' μ ' is the refractive index of the material of the prism. The angle of incidence is

Ans

✔ 1. $A\mu$

✘ 2. $\frac{A}{2\mu}$

✘ 3. $\frac{A\mu}{2}$

✘ 4. $\frac{A}{\mu}$

Question Type : **MCQ**
Question ID : **37135116717**
Option 1 ID : **37135166866**
Option 2 ID : **37135166868**
Option 3 ID : **37135166867**
Option 4 ID : **37135166865**
Status : **Answered**
Chosen Option : **1**

Q.28 A moving body is covering distances which are proportional to square of the time. Then the acceleration of the body is

Ans

✘ 1. decreasing.

✔ 2. constant but not zero.

✘ 3. zero.

✘ 4. increasing.

Question Type : **MCQ**
Question ID : **37135116734**
Option 1 ID : **37135166935**
Option 2 ID : **37135166936**
Option 3 ID : **37135166933**
Option 4 ID : **37135166934**
Status : **Answered**
Chosen Option : **2**

Q.29 Two small drops of mercury each of radius 'R' coalesce to form a large single drop. The ratio of the total surface energies before and after the change is

Ans

✗ 1. $2^{\frac{2}{3}} : 1$

✗ 2. $\sqrt{2} : 1$

✓ 3. $2^{\frac{1}{3}} : 1$

✗ 4. $2 : 1$

Question Type : **MCQ**
Question ID : **37135116736**
Option 1 ID : **37135166942**
Option 2 ID : **37135166944**
Option 3 ID : **37135166941**
Option 4 ID : **37135166943**
Status : **Answered**
Chosen Option : **3**

Q.30 Two identical strings of length 'ℓ' and '2ℓ' vibrate with fundamental frequencies 'N' hertz and '1·5 N' hertz, respectively. The ratio of tensions for smaller length to larger length is

Ans

✗ 1. $9 : 1$

✗ 2. $3 : 1$

✓ 3. $1 : 9$

✗ 4. $1 : 3$

Question Type : **MCQ**
Question ID : **37135116731**
Option 1 ID : **37135166921**
Option 2 ID : **37135166922**
Option 3 ID : **37135166924**
Option 4 ID : **37135166923**
Status : **Answered**
Chosen Option : **3**

Q.31 The force acting on the electrons in hydrogen atom (Bohr's theory) is related to the principle quantum number 'n' as

Ans

✗ 1. n^{-2}

✗ 2. n^{4}

✓ 3. n^{-4}

✗ 4. n^{2}

Question Type : **MCQ**
Question ID : **37135116741**
Option 1 ID : **37135166964**
Option 2 ID : **37135166961**
Option 3 ID : **37135166962**
Option 4 ID : **37135166963**
Status : **Answered**
Chosen Option : **1**

Q.32 When open pipe is closed from one end then third overtone of closed pipe is higher in frequency by 150 Hz than second overtone of open pipe. The fundamental frequency of open end pipe will be

Ans

✓ 1. 300 Hz

✗ 2. 500 Hz

✗ 3. 200 Hz

✗ 4. 400 Hz

Question Type : **MCQ**
Question ID : **37135116716**
Option 1 ID : **37135166862**
Option 2 ID : **37135166864**
Option 3 ID : **37135166861**
Option 4 ID : **37135166863**
Status : **Answered**
Chosen Option : **1**

Q.33 Using Bohr's quantization condition, what is the rotational energy in the second orbit for a diatomic molecule. (I = moment of inertia of diatomic molecule, h = Planck's constant)

Ans

✔ 1. $\frac{h^2}{2I\pi^2}$

✘ 2. $\frac{h}{2I\pi^2}$

✘ 3. $\frac{h}{2I^2\pi}$

✘ 4. $\frac{h^2}{2I^2\pi^2}$

Question Type : **MCQ**
Question ID : **37135116749**
Option 1 ID : **37135166994**
Option 2 ID : **37135166995**
Option 3 ID : **37135166996**
Option 4 ID : **37135166993**
Status : **Answered**
Chosen Option : **2**

Q.34 In common emitter amplifier, input resistance is 1000 Ω, peak value of input signal voltage is 5 mV and $\beta = 60$. The peak value of output current is

Ans

1. $0 \cdot 5 \times 10^{-4}$ A

2. 3×10^{-4} A

3. 2×10^{-5} A

4. 1×10^{-5} A

Question Type : **MCQ**
Question ID : **37135116723**
Option 1 ID : **37135166892**
Option 2 ID : **37135166889**
Option 3 ID : **37135166890**
Option 4 ID : **37135166891**
Status : **Answered**
Chosen Option : **2**

Q.35 Surface density of charge on a charged conducting sphere of radius 'R' in terms of electric intensity 'E' at a distance 'r' in free space is
($r > R$, $\in_0$ = permittivity of free space)

Ans

1. $\in_0 E \frac{R}{r}$

2. $\in_0 E \left(\frac{r}{R}\right)^2$

3. $\in_0 E \frac{r}{R}$

4. $\in_0 E \left(\frac{R}{r}\right)^2$

Question Type : **MCQ**
Question ID : **37135116730**
Option 1 ID : **37135166919**
Option 2 ID : **37135166917**
Option 3 ID : **37135166920**
Option 4 ID : **37135166918**
Status : **Answered**
Chosen Option : **2**

Q.36

For a gas, $\frac{R}{C_V} = 0 \cdot 4$ where 'R' is universal gas constant and C_V is the molar specific heat at constant volume. The gas is made up of molecules which are

Ans

1. polyatomic.

2. rigid diatomic.

3. non-rigid diatomic.

4. monoatomic.

Question Type : **MCQ**
Question ID : **37135116750**
Option 1 ID : **37135166997**
Option 2 ID : **37135166999**
Option 3 ID : **37135167000**
Option 4 ID : **37135166998**
Status : **Answered**
Chosen Option : **2**

Q.37 An electron(e) is revolving in a circular orbit of radius 'r' in hydrogen atom. The angular momentum of the electron is (M = magnetic dipole moment associated with it and m = mass of electron)

Ans

✗ 1. $\frac{4mM}{e}$

✓ 2. $\frac{2mM}{e}$

✗ 3. $\frac{3Mm}{e}$

✗ 4. $\frac{mM}{e}$

Question Type : **MCQ**
Question ID : **37135116711**
Option 1 ID : **37135166842**
Option 2 ID : **37135166843**
Option 3 ID : **37135166844**
Option 4 ID : **37135166841**
Status : **Answered**
Chosen Option : **2**

Q.38 Two identical bar magnets each of magnetic moment 'M', separated by some distance are kept perpendicular to each other. The magnetic induction at a point at the same distance 'd' from the centre of magnets, is (μ_0 = permeability of free space)

Ans

✗ 1. $\frac{\mu_0}{4\pi}(\sqrt{2})\frac{M}{d^3}$

✗ 2. $\frac{\mu_0}{4\pi}(\sqrt{3})\frac{M}{d^3}$

✗ 3. $\left(\frac{2\mu_0}{\pi}\right)\frac{M}{d^3}$

✓ 4. $\frac{\mu_0}{4\pi}(\sqrt{5})\frac{M}{d^3}$

Question Type : **MCQ**
Question ID : **37135116737**
Option 1 ID : **37135166945**
Option 2 ID : **37135166946**
Option 3 ID : **37135166947**
Option 4 ID : **37135166948**
Status : **Answered**
Chosen Option : **2**

Q.39 The maximum velocity of the photoelectron emitted by the metal surface is 'V'. Charge and mass of the photoelectron is denoted by 'e' and 'm' respectivley. The stopping potential in volt is

Ans

1. $\frac{V^2}{\left(\frac{m}{e}\right)}$

2. $\frac{V^2}{2\left(\frac{e}{m}\right)}$

3. $\frac{V^2}{\left(\frac{e}{m}\right)}$

4. $\frac{V^2}{2\left(\frac{m}{e}\right)}$

Question Type : **MCQ**
Question ID : **37135116715**
Option 1 ID : **37135166860**
Option 2 ID : **37135166857**
Option 3 ID : **37135166858**
Option 4 ID : **37135166859**
Status : **Answered**
Chosen Option : **2**

Q.40 When a photon enters glass from air, which one of the following quantity does NOT change?

Ans

1. Velocity
2. Energy
3. Momentum
4. Wavelength

Question Type : MCQ
Question ID : 37135116738
Option 1 ID : 37135166950
Option 2 ID : 37135166949
Option 3 ID : 37135166952
Option 4 ID : 37135166951
Status : Answered
Chosen Option : 4

Q.41 Let force $F = A \sin(Ct) + B \cos(Dx)$ where x and t are displacement and time respectively. The dimensions of $\frac{C}{D}$ are same as dimensions of

Ans

1. angular velocity.
2. angular momentum.
3. velocity gradient.
4. velocity.

Question Type : MCQ
Question ID : 37135116704
Option 1 ID : 37135166814
Option 2 ID : 37135166815
Option 3 ID : 37135166816
Option 4 ID : 37135166813
Status : Answered
Chosen Option : 4

Q.42 In diffraction experiment, from a single slit, the angular width of the central maxima does NOT depend upon

Ans

1. wavelength of light used.

2. distance of the slit from the screen.

3. width of the slit.

4. ratio of wavelength and slit width.

Question Type :	**MCQ**
Question ID :	**37135116733**
Option 1 ID :	**37135166930**
Option 2 ID :	**37135166929**
Option 3 ID :	**37135166932**
Option 4 ID :	**37135166931**
Status :	**Answered**
Chosen Option :	**4**

Q.43 A vehicle of mass 'M' is moving with momentum 'P' on a rough horizontal road. The coefficient of friction between the tyres and the horizontal road is 'μ'. The stopping distance is (g = acceleration due to gravity)

Ans

✗ 1. $\frac{P^2}{2\mu g}$

✓ 2. $\frac{P^2}{2\mu g M^2}$

✗ 3. $\frac{P^2}{\mu g M^2}$

✗ 4. $\frac{P^2}{2\mu m^2}$

Question Type : **MCQ**
Question ID : **37135116722**
Option 1 ID : **37135166887**
Option 2 ID : **37135166885**
Option 3 ID : **37135166886**
Option 4 ID : **37135166888**
Status : **Answered**
Chosen Option : **2**

Q.44 For a particle performing S.H.M., when displacement is 'x', the potential energy and restoring force acting on it is denoted by 'E' and 'F' respectively. The relation between x, E and F is

Ans

1. $\frac{E}{F} + x = 0$

2. $\frac{2E}{F} + x = 0$

3. $\frac{E}{F} - x = 0$

4. $\frac{2E}{F} - x = 0$

Question Type : **MCQ**
Question ID : **37135116724**
Option 1 ID : **37135166894**
Option 2 ID : **37135166893**
Option 3 ID : **37135166895**
Option 4 ID : **37135166896**
Status : **Answered**
Chosen Option : **4**

Q.45 A bullet of mass m moving with velocity 'v' is fired into a wooden block of mass 'M'. If the bullet remains embedded in the block, the final velocity of the system is

Ans

1. $\frac{v}{m(M+m)}$

2. $\frac{m+M}{m}$

3. $\frac{M+m}{mV}$

4. $\frac{mV}{m+M}$

Question Type : MCQ
Question ID : 37135116727
Option 1 ID : 37135166908
Option 2 ID : 37135166907
Option 3 ID : 37135166906
Option 4 ID : 37135166905
Status : Answered
Chosen Option : 4

Q.46 An alternating e.m.f. of 0·2 V is applied across an LCR series circuit having R = 4Ω, C = 80 μF and L = 200 mH. At resonance the voltage drop across the inductor is

Ans

1. 1 V

2. 2·5 V

3. 5 V

4. 10 V

Question Type : MCQ
Question ID : 37135116706
Option 1 ID : 37135166821
Option 2 ID : 37135166822
Option 3 ID : 37135166823
Option 4 ID : 37135166824
Status : Answered
Chosen Option : 3

Q.47 Two vectors of same magnitude have a resultant equal to either of the two vectos. The angle between two vectors is

Ans

✗ 1. $\cos^{-1}(-0\cdot3)$

✗ 2. $\cos^{-1}(-0\cdot6)$

✗ 3. $\cos^{-1}(-0\cdot4)$

✓ 4. $\cos^{-1}(-0\cdot5)$

Question Type : **MCQ**
Question ID : **37135116708**
Option 1 ID : **37135166829**
Option 2 ID : **37135166832**
Option 3 ID : **37135166830**
Option 4 ID : **37135166831**
Status : **Answered**
Chosen Option : **4**

Q.48 A charge q moves with velocity '$\vec{V}$' through electric field ($\vec{E}$) as well as magnetic field ($\vec{B}$). Then the force acting on it is

Ans

✗ 1. $q\left(\vec{V}\times\vec{B}\right)$

✓ 2. $q\vec{E}+q\left(\vec{V}\times\vec{B}\right)$

✗ 3. $q\left(\vec{E}\times\vec{V}\right)$

✗ 4. $q\left(\vec{B}\times\vec{V}\right)$

Question Type : **MCQ**
Question ID : **37135116747**
Option 1 ID : **37135166985**
Option 2 ID : **37135166986**
Option 3 ID : **37135166988**
Option 4 ID : **37135166987**
Status : **Answered**
Chosen Option : **2**

Q.49 The density of a metal at normal pressure P is ϱ. When it is subjected to an excess pressure, the density becomes ϱ'. If K is the bulk modulus of the metal, then the ratio $\frac{\varrho'}{\varrho}$ is

Ans

✗ 1. $1 + \frac{K}{P}$

✗ 2. $1 + \frac{P}{K}$

✗ 3. $\frac{1}{1 - \frac{K}{P}}$

✓ 4. $\frac{1}{1 - \frac{P}{K}}$

Question Type : **MCQ**
Question ID : **37135116720**
Option 1 ID : **37135166878**
Option 2 ID : **37135166880**
Option 3 ID : **37135166879**
Option 4 ID : **37135166877**
Status : **Answered**
Chosen Option : **1**

Q.50 A small metal sphere of mass 'M' and density 'd_1', when dropped in a jar filled with liquid moves with terminal velocity after some time. The viscous force acting on the sphere is
(d_2 = density of liquid, g = gravitational acceleration)

Ans

✔ 1. $Mg\left(1-\frac{d_2}{d_1}\right)$

✘ 2. $Mg\left(\frac{d_2}{d_1}\right)$

✘ 3. $Mg\left(1-\frac{d_1}{d_2}\right)$

✘ 4. $Mg\left(\frac{d_1}{d_2}\right)$

Question Type : **MCQ**
Question ID : **37135116732**
Option 1 ID : **37135166926**
Option 2 ID : **37135166928**
Option 3 ID : **37135166925**
Option 4 ID : **37135166927**
Status : **Answered**
Chosen Option : **3**

Section : **Chemistry**

Q.1

Which among the following methods is NOT suitable for the preparation of alkyl chlorides?

Ans

✗ 1. Addition of HCl to alkene

✗ 2. Treating alcohols with Lucas reagent

✗ 3. By heating alcohols with thionyl chloride

✓ 4. Chlorination of alkanes in presence of sunlight

Question Type : **MCQ**
Question ID : **37135116782**
Option 1 ID : **37135167126**
Option 2 ID : **37135167127**
Option 3 ID : **37135167128**
Option 4 ID : **37135167125**
Status : **Answered**
Chosen Option : **4**

Q.2

Which among the following is an example of allylic alcohol ?

Ans

1. 2- Phenyl propane -2-ol

2. 2- Methylbut -3-en-2-ol

3. Propane -1, 2, 3 - triol

4. Propane -1, 3-diol

Question Type : **MCQ**
Question ID : **37135116794**
Option 1 ID : **37135167174**
Option 2 ID : **37135167173**
Option 3 ID : **37135167175**
Option 4 ID : **37135167176**
Status : **Answered**
Chosen Option : **2**

Q.3

A compound has fcc structure. If density of unit cell is $3{\cdot}4\ g\ cm^{-3}$, what is the edge length of unit cell? (Molar mass =98·99)

Ans

1. 7·783 A°

2. 5·783 A°

3. 8·780 A°

4. 6·083 A°

Question Type : **MCQ**
Question ID : **37135116785**
Option 1 ID : **37135167139**
Option 2 ID : **37135167137**
Option 3 ID : **37135167140**
Option 4 ID : **37135167138**
Status : **Answered**
Chosen Option : **2**

Q.4 A sample of gas absorbs 4000 kJ of heat and surrounding does 2000 J of work on sample. What is the value of ΔU?

Ans

1. 2000 kJ
2. 4002 kJ
3. 4000 kJ
4. 6000 kJ

Question Type : **MCQ**
Question ID : **37135116754**
Option 1 ID : **37135167013**
Option 2 ID : **37135167016**
Option 3 ID : **37135167015**
Option 4 ID : **37135167014**
Status : **Answered**
Chosen Option : **2**

Q.5 Identify the symbol used for water according to Dalton's atomic theory?

Ans

1. 
2. 
3. 
4. 

Question Type : **MCQ**
Question ID : **37135116755**
Option 1 ID : **37135167017**
Option 2 ID : **37135167018**
Option 3 ID : **37135167020**
Option 4 ID : **37135167019**
Status : **Answered**
Chosen Option : **3**

Q.6 Which of the following alcohols needs acidic $KMnO_4$ to convert it into aldehyde or ketone?

Ans

✗ 1. Ethanol

✗ 2. Propan - 1-ol

✗ 3. Propan - 2-ol

✓ 4. 2-Methyl propan -2-ol

Question Type : **MCQ**
Question ID : **37135116777**
Option 1 ID : **37135167108**
Option 2 ID : **37135167107**
Option 3 ID : **37135167106**
Option 4 ID : **37135167105**
Status : **Answered**
Chosen Option : **3**

Q.7 How many electrons are involved in the reaction when $0 \cdot 40$ F of electricity is passed through an electrolytic solution?

Ans

✗ 1. $6 \cdot 642 \times 10^{25}$

✓ 2. $2 \cdot 4088 \times 10^{23}$

✗ 3. $1 \cdot 505 \times 10^{24}$

✗ 4. $6 \cdot 022 \times 10^{23}$

Question Type : **MCQ**
Question ID : **37135116778**
Option 1 ID : **37135167112**
Option 2 ID : **37135167109**
Option 3 ID : **37135167111**
Option 4 ID : **37135167110**
Status : **Answered**
Chosen Option : **2**

Q.8 Which among the following amino acids has lowest molar mass?

Ans

✔ 1. Alanine

✘ 2. Aspartic acid

✘ 3. Arginine

✘ 4. Asparagine

Question Type : **MCQ**
Question ID : **37135116790**
Option 1 ID : **37135167157**
Option 2 ID : **37135167159**
Option 3 ID : **37135167158**
Option 4 ID : **37135167160**
Status : **Answered**
Chosen Option : **1**

Q.9 An ideal gas expands isothermally and reversibly from $10m^3$ to $20m^3$ at 300K, performing 5·187kJ of work on surrounding, calculate number of moles of gas used?

Ans

✘ 1. 1

✔ 2. 3

✘ 3. 2

✘ 4. 1·5

Question Type : **MCQ**
Question ID : **37135116773**
Option 1 ID : **37135167089**
Option 2 ID : **37135167092**
Option 3 ID : **37135167091**
Option 4 ID : **37135167090**
Status : **Answered**
Chosen Option : **3**

Q.10 Which among the following ore is concentrated by froth floatation process?

Ans

✗ 1. Diaspore

✗ 2. Bauxite

✗ 3. Dolomite

✓ 4. Galena

Question Type : **MCQ**
Question ID : **37135116766**
Option 1 ID : **37135167062**
Option 2 ID : **37135167064**
Option 3 ID : **37135167063**
Option 4 ID : **37135167061**
Status : **Answered**
Chosen Option : **4**

Q.11 Which among the following lanthanoids, shows only +3 oxidation state?

Ans

✗ 1. Terbium

✓ 2. Gadolinium

✗ 3. Neodynium

✗ 4. Cerium

Question Type : **MCQ**
Question ID : **37135116757**
Option 1 ID : **37135167028**
Option 2 ID : **37135167027**
Option 3 ID : **37135167026**
Option 4 ID : **37135167025**
Status : **Answered**
Chosen Option : **2**

Q.12 Which among the following polymers is obtained from styrene and 1-3-Butadiene?

Ans

✗ 1. Buna-N

✗ 2. PHBV

✗ 3. Butyl rubber

✓ 4. SBR

Question Type : **MCQ**
Question ID : **37135116780**
Option 1 ID : **37135167118**
Option 2 ID : **37135167119**
Option 3 ID : **37135167120**
Option 4 ID : **37135167117**
Status : **Answered**
Chosen Option : **4**

Q.13 Identify the product obtained when benzamide is treated with bromine and aqueous sodium hydroxide?

Ans

✗ 1. Bromobenzene

✗ 2. Phenol

✗ 3. Benzyl alcohol

✓ 4. Aniline

Question Type : **MCQ**
Question ID : **37135116765**
Option 1 ID : **37135167059**
Option 2 ID : **37135167057**
Option 3 ID : **37135167058**
Option 4 ID : **37135167060**
Status : **Answered**
Chosen Option : **3**

Q.14 Which of the following molecule contain 50% p character of hybrid orbital in C atom?

Ans

1. Propene
2. Acetylene
3. Methane
4. Ethane

Question Type : MCQ
Question ID : 37135116792
Option 1 ID : 37135167167
Option 2 ID : 37135167165
Option 3 ID : 37135167166
Option 4 ID : 37135167168
Status : Answered
Chosen Option : 2

Q.15 Mixture of iodine and Sodium Sulphate is separated by _____.

Ans

1. Sublimation
2. Chromatography
3. differential extraction
4. distillation

Question Type : MCQ
Question ID : 37135116751
Option 1 ID : 37135167001
Option 2 ID : 37135167003
Option 3 ID : 37135167004
Option 4 ID : 37135167002
Status : Answered
Chosen Option : 2

Q.16 Which among the following group-15 elements does NOT react with concentrated sulphuric acid?

Ans

✗ 1. Phosphorus

✗ 2. Arsenic

✓ 3. Nitrogen

✗ 4. Antimony

Question Type : **MCQ**
Question ID : **37135116758**
Option 1 ID : **37135167030**
Option 2 ID : **37135167031**
Option 3 ID : **37135167029**
Option 4 ID : **37135167032**
Status : **Answered**
Chosen Option : **3**

Q.17 If 38·55 kJ of heat is absorbed when 6·0 g of O_2 react with ClF according to reaction

$2ClF_{(g)} + O_{2\,(g)} \longrightarrow Cl_2O_{(g)} + OF_{2\,(g)}$

What is the standard enthalpy of reaction?

Ans

✗ 1. 72· 28 kJ

✓ 2. 205·6 kJ

✗ 3. 102·8 kJ

✗ 4. 49·80 kJ

Question Type : **MCQ**
Question ID : **37135116800**
Option 1 ID : **37135167198**
Option 2 ID : **37135167199**
Option 3 ID : **37135167197**
Option 4 ID : **37135167200**
Status : **Answered**
Chosen Option : **3**

Q.18 A first order reaction has rate constant $1 \times 10^{-2}\ s^{-1}$. What time will it take for 20 g of reactant to reduce to 5 g?

Ans

✗ 1. 346·5 s

✗ 2. 238·6 s

✓ 3. 138·6 s

✗ 4. 693·0 s

Question Type : **MCQ**
Question ID : **37135116761**
Option 1 ID : **37135167042**
Option 2 ID : **37135167044**
Option 3 ID : **37135167041**
Option 4 ID : **37135167043**
Status : **Answered**
Chosen Option : **3**

Q.19 Identify the element having highest enthalpy of atomization from following.

Ans

✗ 1. Cu (Z=29)

✓ 2. Fe (Z=26)

✗ 3. Zn (Z=30)

✗ 4. Sc (Z=21)

Question Type : **MCQ**
Question ID : **37135116776**
Option 1 ID : **37135167104**
Option 2 ID : **37135167103**
Option 3 ID : **37135167101**
Option 4 ID : **37135167102**
Status : **Answered**
Chosen Option : **3**

Q.20

Which of the following is called as Mandelonitrile?

Ans

✗ 1. Acetone Cyanohydrine

✗ 2. Acetadehyde Cyanohydrine

✓ 3. Benzaldehyde Cyanohydrine

✗ 4. Formaldehyde Cyanohydrine

Question Type : **MCQ**
Question ID : **37135116772**
Option 1 ID : **37135167087**
Option 2 ID : **37135167085**
Option 3 ID : **37135167086**
Option 4 ID : **37135167088**
Status : **Answered**
Chosen Option : **3**

Q.21

Identify the tetradentate ligand from the following.

Ans

✗ 1. Ethylene diamine tetracetato

✓ 2. Triethylene tetramine

✗ 3. Dimethyl glyoximato

✗ 4. Oxalato

Question Type : **MCQ**
Question ID : **37135116764**
Option 1 ID : **37135167055**
Option 2 ID : **37135167053**
Option 3 ID : **37135167056**
Option 4 ID : **37135167054**
Status : **Answered**
Chosen Option : **2**

Q.22

Which among the following is a biodegradable polymer?

Ans

1. PVC

2. Polythene

3. Dextron

4. Teflon

Question Type : **MCQ**
Question ID : **37135116767**
Option 1 ID : **37135167065**
Option 2 ID : **37135167066**
Option 3 ID : **37135167068**
Option 4 ID : **37135167067**
Status : **Answered**
Chosen Option : **3**

Q.23

What is the molarity of solution containing 3·2g of NaOH (Molar mass 40g mol^{-1}) in 250 cm^3 of water?

Ans

1. $0 \cdot 512\ mol\ dm^{-3}$

2. $0 \cdot 32\ mol\ dm^{-3}$

3. $0 \cdot 032\ mol\ dm^{-3}$

4. $0 \cdot 02\ mol\ dm^{-3}$

Question Type : **MCQ**
Question ID : **37135116779**
Option 1 ID : **37135167113**
Option 2 ID : **37135167115**
Option 3 ID : **37135167116**
Option 4 ID : **37135167114**
Status : **Answered**
Chosen Option : **2**

Q.24 If a centimolal aqueous solution of $K_3[F_e(CN)_6]$ has degree of dissociation 0·78, what is the value of vant Hoff factor?

Ans

✔ 1. 3·34

✘ 2. 1·2

✘ 3. 2·5

✘ 4. 4·0

Question Type : **MCQ**
Question ID : **37135116791**
Option 1 ID : **37135167163**
Option 2 ID : **37135167161**
Option 3 ID : **37135167162**
Option 4 ID : **37135167164**
Status : **Answered**
Chosen Option : **1**

Q.25 Xenon crystallizes in fcc lattice and the edge length of unit cell is 620 pm. What is the radius of Xe atom?

Ans

✔ 1. 219 · 2 pm

✘ 2. 438 · 5 pm

✘ 3. 265 · 5 pm

✘ 4. 536 · 9 pm

Question Type : **MCQ**
Question ID : **37135116797**
Option 1 ID : **37135167185**
Option 2 ID : **37135167186**
Option 3 ID : **37135167187**
Option 4 ID : **37135167188**
Status : **Answered**
Chosen Option : **1**

Q.26

Which of the following statements is true for carbonyl group?

Ans

✗ 1. Carbon atom is sp^3 hybridised

✓ 2. Carbon atom forms three sigma bonds

✗ 3. C-C-O- bond angle is 90°

✗ 4. The carbonyl bond is weaker as compared to double bond in alkene

Question Type : **MCQ**
Question ID : **37135116759**
Option 1 ID : **37135167033**
Option 2 ID : **37135167034**
Option 3 ID : **37135167035**
Option 4 ID : **37135167036**
Status : **Answered**
Chosen Option : **2**

Q.27

Which among the following pairs of halogen forms the interhalogen compound of the type XX'_7 ?

Ans

✗ 1. Br and F

✗ 2. Cl and F

✓ 3. I and F

✗ 4. I and Cl

Question Type : **MCQ**
Question ID : **37135116770**
Option 1 ID : **37135167078**
Option 2 ID : **37135167077**
Option 3 ID : **37135167079**
Option 4 ID : **37135167080**
Status : **Answered**
Chosen Option : **3**

Q.28 If concentration of reactant 'A' is increased by 10 times the rate of reaction becomes 100 times. What is the order of reaction if rate law is, rate = $k[A]^x$?

Ans

✗ 1. 1

✗ 2. 4

✗ 3. 3

✓ 4. 2

Question Type : **MCQ**
Question ID : **37135116752**
Option 1 ID : **37135167005**
Option 2 ID : **37135167008**
Option 3 ID : **37135167007**
Option 4 ID : **37135167006**
Status : **Answered**
Chosen Option : **4**

Q.29 Zirconium is refined by

Ans

✗ 1. Liquation process

✗ 2. Mond process

✓ 3. Van Arkel method

✗ 4. Electrolytic refining process

Question Type : **MCQ**
Question ID : **37135116789**
Option 1 ID : **37135167154**
Option 2 ID : **37135167153**
Option 3 ID : **37135167155**
Option 4 ID : **37135167156**
Status : **Answered**
Chosen Option : **3**

Q.30 Which among the following compounds has highest boiling point?

Ans

✗ 1. CH_3- CH_2-CH_2-CH_2-OH

✗ 2. CH_3- CH_2-$COCH_3$

✓ 3. CH_3- CH_2-COOH

✗ 4. CH_3- CH_2- CH_2-CHO

Question Type : **MCQ**
Question ID : **37135116787**
Option 1 ID : **37135167146**
Option 2 ID : **37135167148**
Option 3 ID : **37135167145**
Option 4 ID : **37135167147**
Status : **Answered**
Chosen Option : **1**

Q.31 Which among the following is non poisonous in nature?

Ans

✗ 1. Phosgene

✗ 2. Gaseous chlorine

✗ 3. Phosphine

✓ 4. Red phosphorus

Question Type : **MCQ**
Question ID : **37135116795**
Option 1 ID : **37135167177**
Option 2 ID : **37135167179**
Option 3 ID : **37135167178**
Option 4 ID : **37135167180**
Status : **Answered**
Chosen Option : **4**

Q.32

Identify the enzyme that catalyses the reaction of CO_2 with water in human body?

Ans

✔ 1. Ferroxidase

✘ 2. Catalase

✘ 3. Nitrogenase

✘ 4. Carbonic anhydrase

Question Type : **MCQ**
Question ID : **37135116775**
Option 1 ID : **37135167098**
Option 2 ID : **37135167097**
Option 3 ID : **37135167099**
Option 4 ID : **37135167100**
Status : **Answered**
Chosen Option : **1**

Q.33

What is the bond order of B_2 molecule?

Ans

✔ 1. 0

✘ 2. 1

✘ 3. 3

✘ 4. 2

Question Type : **MCQ**
Question ID : **37135116799**
Option 1 ID : **37135167193**
Option 2 ID : **37135167194**
Option 3 ID : **37135167195**
Option 4 ID : **37135167196**
Status : **Answered**
Chosen Option : **2**

Q.34

The reaction $2R - Cl + CoF_2 \longrightarrow 2R - F + CoCl_2$ is an example of _____.

Ans

✔ 1. Swarts reaction

✘ 2. Finkelstein reaction

✘ 3. Wurtz – fittig reaction

✘ 4. Sandmeyer's reaction

Question Type : **MCQ**
Question ID : **37135116769**
Option 1 ID : **37135167073**
Option 2 ID : **37135167074**
Option 3 ID : **37135167076**
Option 4 ID : **37135167075**
Status : **Answered**
Chosen Option : **1**

Q.35

A metallic element crystallises in simple cubic lattice. If edge legth of the unit cell is 3A°, with density 8 g/cc, what is the number of unit cells in 100 g of the metal? (Molar mass of metal = 108 g/mol)

Ans

✘ 1. $1{\cdot}33 \times 10^{20}$

✘ 2. 2×10^{24}

✘ 3. $2{\cdot}7 \times 10^{22}$

✔ 4. 5×10^{23}

Question Type : **MCQ**
Question ID : **37135116768**
Option 1 ID : **37135167069**
Option 2 ID : **37135167072**
Option 3 ID : **37135167070**
Option 4 ID : **37135167071**
Status : **Answered**
Chosen Option : **3**

Q.36

Which among the following compounds belongs to lipids?

Ans

1. Cloroxylenol

2. Terpenes

3. BHA

4. Novestrol

Question Type : MCQ
Question ID : 37135116798
Option 1 ID : 37135167192
Option 2 ID : 37135167191
Option 3 ID : 37135167189
Option 4 ID : 37135167190
Status : Answered
Chosen Option : 2

Q.37

What is the effective atomic number of Zn in $[Zn\ (NH_3)_4]\ SO_4$?
(at. no. of Zn = 30)

Ans

1. 30

2. 27

3. 36

4. 28

Question Type : MCQ
Question ID : 37135116793
Option 1 ID : 37135167171
Option 2 ID : 37135167169
Option 3 ID : 37135167172
Option 4 ID : 37135167170
Status : Answered
Chosen Option : 3

Q.38

What is the value of C-O-H bond angle in CH_3–OH ?

Ans

✔ 1. $108 \cdot 9°$

✘ 2. $107°$

✘ 3. $109 \cdot 5°$

✘ 4. $110°$

Question Type : **MCQ**
Question ID : **37135116788**
Option 1 ID : **37135167150**
Option 2 ID : **37135167151**
Option 3 ID : **37135167152**
Option 4 ID : **37135167149**
Status : **Answered**
Chosen Option : **1**

Q.39

Which among the following is antioxident?

Ans

✘ 1. Pentaerythrityl stearate

✘ 2. Aspirin

✔ 3. BHA

✘ 4. Penicillin

Question Type : **MCQ**
Question ID : **37135116762**
Option 1 ID : **37135167047**
Option 2 ID : **37135167045**
Option 3 ID : **37135167046**
Option 4 ID : **37135167048**
Status : **Answered**
Chosen Option : **1**

Q.40

Alkyl cynides on reduction by sodium and ethanol give primary amines. This reaction is called as

Ans

✗ 1. Wolff-Kishner reduction

✗ 2. Hell-Vohlard-Zelinsky reaction

✓ 3. Mendius reduction

✗ 4. Clemmensen reduction

Question Type : **MCQ**
Question ID : **37135116784**
Option 1 ID : **37135167136**
Option 2 ID : **37135167133**
Option 3 ID : **37135167134**
Option 4 ID : **37135167135**
Status : **Answered**
Chosen Option : **3**

Q.41

What is the oxidation number of As in H_3AsO_3 ?

Ans

✗ 1. $+4$

✗ 2. $+2$

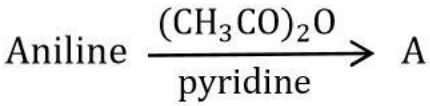
✓ 3. $+3$

✗ 4. -3

Question Type : **MCQ**
Question ID : **37135116771**
Option 1 ID : **37135167082**
Option 2 ID : **37135167083**
Option 3 ID : **37135167081**
Option 4 ID : **37135167084**
Status : **Answered**
Chosen Option : **3**

Q.42

Identify the product 'A' in the following reaction?



Ans

✔ 1. Acentanilide

✗ 2. Sulphanilic acid

✗ 3. P- nitroacentanilide

✗ 4. Benzenediazonium chloride

Question Type : **MCQ**
Question ID : **37135116753**
Option 1 ID : **37135167009**
Option 2 ID : **37135167010**
Option 3 ID : **37135167011**
Option 4 ID : **37135167012**
Status : **Answered**
Chosen Option : **3**

Q.43 What will be the concentration of NaCl solution, if the molar conductivity and conductivity of NaCl solution is $124{\cdot}3\ \Omega^{-1}cm^2mol^{-1}$ and $1{\cdot}243\ \times 10^{-4}\ \Omega^{-1}\ cm^2$ respectively?

Ans

✔ 1. $0 \cdot 001\ mol\ L^{-1}$

✘ 2. $0 \cdot 01\ mol\ L^{-1}$

✘ 3. $0 \cdot 02\ mol\ L^{-1}$

✘ 4. $0 \cdot 1\ mol\ L^{-1}$

Question Type : **MCQ**
Question ID : **37135116783**
Option 1 ID : **37135167131**
Option 2 ID : **37135167130**
Option 3 ID : **37135167132**
Option 4 ID : **37135167129**
Status : **Answered**
Chosen Option : **1**

Q.44 Which among the following is used as refrigerants and for air conditioning?

Ans

✘ 1. Trichloro methane

✘ 2. Carbon tetrachloride

✘ 3. Dichloromethane

✔ 4. Dichloro difluoro methane

Question Type : **MCQ**
Question ID : **37135116756**
Option 1 ID : **37135167021**
Option 2 ID : **37135167022**
Option 3 ID : **37135167023**
Option 4 ID : **37135167024**
Status : **Answered**
Chosen Option : **4**

Q.45 What type of inter molecular force is present between magnesium chloride and water?

Ans

✗ 1. Dipole-dipole interaction

✓ 2. Ion-dipole interaction

✗ 3. Dipole-induced dipole interaction

✗ 4. Hydrogen bonding

Question Type : **MCQ**
Question ID : **37135116763**
Option 1 ID : **37135167050**
Option 2 ID : **37135167049**
Option 3 ID : **37135167051**
Option 4 ID : **37135167052**
Status : **Answered**
Chosen Option : **2**

Q.46 Which of the following salt contain interstitial water molecule in it?

Ans

✗ 1. $[Cr(H_2O)_6]^{3+}.3Cl^-$

✗ 2. $CuSO_4.5H_2O$

✗ 3. $[Cu(H_2O)_2(NH_3)_5]Cl_2$

✓ 4. $BaCl_2.2H_2O$

Question Type : **MCQ**
Question ID : **37135116786**
Option 1 ID : **37135167141**
Option 2 ID : **37135167143**
Option 3 ID : **37135167144**
Option 4 ID : **37135167142**
Status : **Answered**
Chosen Option : **1**

Q.47

Which among the following type of linkages is present in cellulose?

Ans

✗ 1. $1 \rightarrow 6\ \beta$ glycosidic linkages

✓ 2. $1 \rightarrow 4\ \beta$ glycosidic linkages

✗ 3. $1 \rightarrow 4\ \alpha$ glycosidic linkages

✗ 4. $1 \rightarrow 6\ \alpha$ glycosidic linkages

Question Type : **MCQ**
Question ID : **37135116774**
Option 1 ID : **37135167094**
Option 2 ID : **37135167095**
Option 3 ID : **37135167096**
Option 4 ID : **37135167093**
Status : **Answered**
Chosen Option : **3**

Q.48

Which of the following is NOT present in baking powder?

Ans

✓ 1. Sodium carbonate

✗ 2. Sodium hydrogen carbonate

✗ 3. Potassium hydrogen tartrate

✗ 4. Starch

Question Type : **MCQ**
Question ID : **37135116781**
Option 1 ID : **37135167123**
Option 2 ID : **37135167122**
Option 3 ID : **37135167124**
Option 4 ID : **37135167121**
Status : **Answered**
Chosen Option : **4**

Q.49 A solution has an osmotic pressure of 'x' kPa at 300K having 1 mole of solute in $10{\cdot}5m^3$ of solution. If it's osmotic pressure is reduced to $\left(\frac{1}{10}\right)^{th}$ of it's initial value, what is the new volume of solution?

Ans

✗ 1. $30\ m^3$

✓ 2. $105\ m^3$

✗ 3. $110\ m^3$

✗ 4. $11{\cdot}0m^3$

Question Type : **MCQ**
Question ID : **37135116760**
Option 1 ID : **37135167038**
Option 2 ID : **37135167039**
Option 3 ID : **37135167040**
Option 4 ID : **37135167037**
Status : **Answered**
Chosen Option : **2**

Q.50

Identify the catalyst X used in following reaction?

$$CH_3CH_2Br + 2[H] \xrightarrow{X} CH_3-CH_3 + HBr$$

Ans

✗ 1. CaO, Δ

✓ 2. Zn-Cu Couple in alcohol

✗ 3. $KMnO_4$

✗ 4. $K_2Cr_2O_7$

Question Type : **MCQ**
Question ID : **37135116796**
Option 1 ID : **37135167184**
Option 2 ID : **37135167183**
Option 3 ID : **37135167181**
Option 4 ID : **37135167182**
Status : **Answered**
Chosen Option : **1**

Section : **Mathematics**

Q.1

If $f(x) = \frac{2x+3}{3x-2}$, $x \neq \frac{2}{3}$, then the function fof is

Ans

✗ 1. an even function

✓ 2. an identity function

✗ 3. a constant function

✗ 4. an exponential function

Question Type :	MCQ
Question ID :	37135116847
Option 1 ID :	37135167385
Option 2 ID :	37135167387
Option 3 ID :	37135167388
Option 4 ID :	37135167386
Status :	Answered
Chosen Option :	2

Q.2 In a quadrilateral $ABCD$, M and N are the mid-points of the sides AB and CD respectively. If $\overline{AD} + \overline{BC} = t\overline{MN}$, then $t =$

Ans

1. 4 ✗

2. 2 ✓

3. $\frac{1}{2}$ ✗

4. $\frac{3}{2}$ ✗

Question Type : **MCQ**
Question ID : **37135116835**
Option 1 ID : **37135167338**
Option 2 ID : **37135167340**
Option 3 ID : **37135167337**
Option 4 ID : **37135167339**
Status : **Answered**
Chosen Option : **2**

Q.3 If the lines given by $\frac{x-1}{2\lambda}=\frac{y-1}{-5}=\frac{z-1}{2}$ and $\frac{x+2}{\lambda}=\frac{y+3}{\lambda}=\frac{z+5}{1}$ are parallel,

then the value of λ is

Ans

✗ 1. $\frac{-2}{5}$

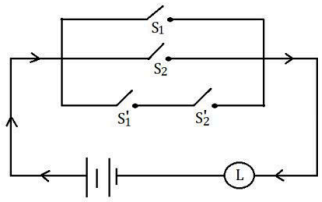
✗ 2. $\frac{2}{5}$

✗ 3. $\frac{5}{2}$

✓ 4. $\frac{-5}{2}$

Question Type :	**MCQ**
Question ID :	**37135116824**
Option 1 ID :	**37135167296**
Option 2 ID :	**37135167295**
Option 3 ID :	**37135167293**
Option 4 ID :	**37135167294**
Status :	**Answered**
Chosen Option :	**4**

Q.4 The symbolic form of the following circuit is (where p, q represents switches s_1 and s_2 closed respectively)



Ans

✗ 1. $(p \wedge q) \wedge (\sim p \wedge \sim q) \equiv \ell$

✗ 2. $p \vee [q \wedge (\sim p \wedge \sim q) \equiv \ell$

✗ 3. $p \wedge [q \wedge (\sim p \wedge \sim q) \equiv \ell$

✓ 4. $(p \vee q) \vee (\sim p \wedge \sim q) \equiv \ell$

Question Type : **MCQ**
Question ID : **37135116833**
Option 1 ID : **37135167330**
Option 2 ID : **37135167331**
Option 3 ID : **37135167332**
Option 4 ID : **37135167329**
Status : **Answered**
Chosen Option : **4**

Q.5

The value of $\sin^{-1}\left(-\frac{1}{2}\right)+\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$ is

Ans

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

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

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

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

Question Type : **MCQ**
Question ID : **37135116848**
Option 1 ID : **37135167390**
Option 2 ID : **37135167391**
Option 3 ID : **37135167389**
Option 4 ID : **37135167392**
Status : **Answered**
Chosen Option : **3**

Q.6

$$\int_{2}^{3} \frac{x}{x^2-1}\,dx =$$

Ans

✗ 1. $\left(\frac{-1}{2}\right) log \left(\frac{8}{3}\right)$

✓ 2. $\left(\frac{1}{2}\right) log \left(\frac{8}{3}\right)$

✗ 3. $\left(\frac{-1}{3}\right) log \left(\frac{8}{3}\right)$

✗ 4. $\left(\frac{1}{3}\right) log \left(\frac{8}{3}\right)$

Question Type : **MCQ**
Question ID : **37135116813**
Option 1 ID : **37135167250**
Option 2 ID : **37135167249**
Option 3 ID : **37135167252**
Option 4 ID : **37135167251**
Status : **Answered**
Chosen Option : **2**

Q.7

In a triangle ABC with usual notations , if $\frac{cosA}{a} = \frac{cosB}{b} = \frac{cosC}{c}$, then area of triangle ABC with $a = \sqrt{6}$ is

Ans

1. $\frac{\sqrt{3}}{2}$ sq. units

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

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

4. $\frac{5\sqrt{3}}{2}$ sq. units

Question Type : **MCQ**
Question ID : **37135116811**
Option 1 ID : **37135167241**
Option 2 ID : **37135167243**
Option 3 ID : **37135167242**
Option 4 ID : **37135167244**
Status : **Answered**
Chosen Option : **2**

Q.8 If the foot of perpendicular drawn from the origin to the plane is $(3, 2, 1)$, then the equation of plane is

Ans

1. $3x + 2y - z = 12$

2. $3x + 2y - z = 14$

3. $3x + 2y + z = 14$

4. $3x - 2y - z = 12$

Question Type : **MCQ**
Question ID : **37135116831**
Option 1 ID : **37135167322**
Option 2 ID : **37135167323**
Option 3 ID : **37135167324**
Option 4 ID : **37135167321**
Status : **Answered**
Chosen Option : **3**

Q.9 The letters of the word ' LOGARITHM' are arranged at random. The probability that arrangements starts with vowel and end with consonant is

Ans

✗ 1. $\frac{7!}{9!}$

✗ 2. $\frac{18}{9!}$

✓ 3. $\frac{1}{4}$

✗ 4. $\frac{1}{9}$

Question Type : **MCQ**
Question ID : **37135116825**
Option 1 ID : **37135167299**
Option 2 ID : **37135167298**
Option 3 ID : **37135167297**
Option 4 ID : **37135167300**
Status : **Answered**
Chosen Option : **3**

Q.10 The differential equation obtained from the function $y = a(x-a)^2$ is

Ans

1. $8y^2 = \left(\frac{dy}{dx}\right)^2 \left[x - \frac{1}{4y}\left(\frac{dy}{dx}\right)^2\right]^2$

2. $8y^2 = \left(\frac{dy}{dx}\right)^2 \left[x + \frac{1}{4y}\left(\frac{dy}{dx}\right)^2\right]^2$

3. $2y^2 = \left(\frac{dy}{dx}\right)^2 \left[x - \frac{1}{4y}\left(\frac{dy}{dx}\right)^2\right]^2$

4. $4y^2 = \left(\frac{dy}{dx}\right)^2 \left[x - \frac{1}{4y}\left(\frac{dy}{dx}\right)^2\right]^2$

Question Type : **MCQ**
Question ID : **37135116841**
Option 1 ID : **37135167363**
Option 2 ID : **37135167364**
Option 3 ID : **37135167361**
Option 4 ID : **37135167362**
Status : **Answered**
Chosen Option : **4**

Q.11

If $\int \frac{sin\theta}{sin3\theta}\, d\theta = \frac{1}{2k}\, log\left|\frac{k+\tan\theta}{k-\tan\theta}\right| + c$, then $k =$

Ans

1. $\sqrt{3}$

2. $\sqrt{2}$

3. $\sqrt{7}$

4. $\sqrt{5}$

Question Type : **MCQ**
Question ID : **37135116812**
Option 1 ID : **37135167246**
Option 2 ID : **37135167247**
Option 3 ID : **37135167245**
Option 4 ID : **37135167248**
Status : **Answered**
Chosen Option : **1**

Q.12 The area of the region bounded by the curve $y = 4x^3 - 6x^2 + 4x + 1$ and the lines $x = 1, x = 5$ and X axis is

Ans

✔ 1. 428 sq. units

✘ 2. 400 sq. units

✘ 3. 334 sq. units

✘ 4. 378 sq. units

Question Type : **MCQ**
Question ID : **37135116806**
Option 1 ID : **37135167223**
Option 2 ID : **37135167221**
Option 3 ID : **37135167222**
Option 4 ID : **37135167224**
Status : **Answered**
Chosen Option : **1**

Q.13

If $f(x) = log\,(sinx)\ ,\ x \in \left[\frac{\pi}{6}, \frac{5\pi}{6}\right]$, then value of 'c' by applying L.M.V.T. is

Ans

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

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

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

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

Question Type : **MCQ**
Question ID : **37135116849**
Option 1 ID : **37135167394**
Option 2 ID : **37135167395**
Option 3 ID : **37135167396**
Option 4 ID : **37135167393**
Status : **Answered**
Chosen Option : **1**

Q.14 The direction cosines of a line which is perpendicular to lines whose direction ratios are $3, -2, 4$ and $1, 3, -2$ are

Ans

1. $\frac{-8}{\sqrt{285}}, \frac{-10}{\sqrt{285}}, \frac{11}{\sqrt{285}}$

2. $\frac{-8}{\sqrt{285}}, \frac{10}{\sqrt{285}}, \frac{11}{\sqrt{285}}$

3. $\frac{8}{\sqrt{285}}, \frac{10}{\sqrt{285}}, \frac{11}{\sqrt{285}}$

4. $\frac{4}{\sqrt{297}}, \frac{5}{\sqrt{297}}, \frac{16}{\sqrt{297}}$

Question Type : **MCQ**
Question ID : **37135116815**
Option 1 ID : **37135167258**
Option 2 ID : **37135167257**
Option 3 ID : **37135167259**
Option 4 ID : **37135167260**
Status : **Answered**
Chosen Option : **2**

Q.15 The polar co-ordinates of the point whose cartesian co-ordinates are $(-2, -2)$, are given by

Ans

1. $\left(2\sqrt{2}, \frac{5\pi}{4}\right)$

2. $\left(2\sqrt{2}, \frac{3\pi}{4}\right)$

3. $\left(2\sqrt{2}, \frac{7\pi}{6}\right)$

4. $\left(2\sqrt{2}, \frac{\pi}{4}\right)$

Question Type : **MCQ**
Question ID : **37135116807**
Option 1 ID : **37135167227**
Option 2 ID : **37135167226**
Option 3 ID : **37135167228**
Option 4 ID : **37135167225**
Status : **Answered**
Chosen Option : **1**

Q.16

The p. d. f. of c. r. v. X is given by $f(x) = \frac{x+2}{18}$ if $-2 < x < 4$

$= 0$, otherwise

then P [$|x| < 1$] =

Ans

1. $\frac{1}{18}$

2. $\frac{4}{9}$

3. $\frac{2}{9}$

4. $\frac{1}{9}$

Question Type : **MCQ**
Question ID : **37135116822**
Option 1 ID : **37135167285**
Option 2 ID : **37135167288**
Option 3 ID : **37135167286**
Option 4 ID : **37135167287**
Status : **Answered**
Chosen Option : **3**

Q.17 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. 4 N

✗ 2. 3 N

✔ 3. 8 N

✗ 4. 6 N

Question Type : **MCQ**
Question ID : **37135116809**
Option 1 ID : **37135167236**
Option 2 ID : **37135167235**
Option 3 ID : **37135167233**
Option 4 ID : **37135167234**
Status : **Answered**
Chosen Option : **3**

Q.18 The sum of the cofactors of the elements of second row of the matrix $\begin{bmatrix} 1 & 3 & 2 \\ -2 & 0 & 1 \\ 5 & 2 & 1 \end{bmatrix}$ is

Ans

✗ 1. 23

✗ 2. 3

✔ 3. 5

✗ 4. −23

Question Type : **MCQ**
Question ID : **37135116805**
Option 1 ID : **37135167220**
Option 2 ID : **37135167217**
Option 3 ID : **37135167218**
Option 4 ID : **37135167219**
Status : **Answered**
Chosen Option : **3**

Q.19

If $\sqrt{\frac{x}{y}}+\sqrt{\frac{y}{x}}=4$, then $\frac{dy}{dx}=$

Ans

1. $\frac{y-7x}{7x-y}$

2. $\frac{7y-x}{y-7x}$

3. $\frac{7x+y}{x-7y}$

4. $\frac{y+7x}{7y-x}$

Question Type : **MCQ**
Question ID : **37135116829**
Option 1 ID : **37135167314**
Option 2 ID : **37135167313**
Option 3 ID : **37135167315**
Option 4 ID : **37135167316**
Status : **Answered**
Chosen Option : **2**

Q.20 If $(a, -2a), a > 0$ is the midpoint of a line segment intercepted between the co-ordinate axes, then the equation of the line is

Ans

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

2. $2x - y = 4a$

3. $x - 2y = 5a$

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

Question Type : **MCQ**
Question ID : **37135116804**
Option 1 ID : **37135167215**
Option 2 ID : **37135167214**
Option 3 ID : **37135167213**
Option 4 ID : **37135167216**
Status : **Answered**
Chosen Option : **2**

Q.21 The angle between the lines

$\vec{r} = (\hat{i} + 2\hat{j} + 3\hat{k}) + \lambda\,(\hat{i} + \hat{j} + 2\hat{k})$ and $\vec{r} = (3\hat{i} + \hat{k}) + \lambda'\,(2\hat{i} + \hat{j} - \hat{k})$, $\lambda,\ \lambda' \in \mathrm{R}$ is

Ans

✔ 1. $\cos^{-1}\left(\frac{1}{6}\right)$

✘ 2. $\cos^{-1}\left(\frac{1}{5}\right)$

✘ 3. $\cos^{-1}\left(\frac{1}{3}\right)$

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

Question Type : **MCQ**
Question ID : **37135116803**
Option 1 ID : **37135167211**
Option 2 ID : **37135167212**
Option 3 ID : **37135167209**
Option 4 ID : **37135167210**
Status : **Answered**
Chosen Option : **1**

Q.22 If the vectors $\hat{i}+\hat{j}+\hat{k}$, $\hat{i}-\hat{j}+\hat{k}$ and $2\hat{i}+3\hat{j}+m\hat{k}$ are coplanar, then $m=$

Ans

✗ 1. 3

✗ 2. -2

✓ 3. 2

✗ 4. -3

Question Type : **MCQ**
Question ID : **37135116821**
Option 1 ID : **37135167284**
Option 2 ID : **37135167281**
Option 3 ID : **37135167283**
Option 4 ID : **37135167282**
Status : **Answered**
Chosen Option : **3**

Q.23

If $f(x) = log(secx + tanx)$, then $f'\left(\frac{\pi}{4}\right) =$

Ans

1. 1

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

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

4. $\sqrt{2}$

Question Type : **MCQ**
Question ID : **37135116837**
Option 1 ID : **37135167345**
Option 2 ID : **37135167348**
Option 3 ID : **37135167346**
Option 4 ID : **37135167347**
Status : **Answered**
Chosen Option : **4**

Q.24 The differential equation of all lines perpendicular to the line $5x + 2y + 7 = 0$ is

Ans

1. $3dy - 2dx = 0$

2. $2dy - 5dx = 0$

3. $2dy - 3dx = 0$

4. $5dy - 2dx = 0$

Question Type : **MCQ**
Question ID : **37135116839**
Option 1 ID : **37135167355**
Option 2 ID : **37135167354**
Option 3 ID : **37135167356**
Option 4 ID : **37135167353**
Status : **Answered**
Chosen Option : **4**

Q.25 If for an Arithmetic progression, 9 times nineth term is equal to 13 times thirteenth term, then value of twenty second term is

Ans

✔ 1. 0

✘ 2. 2

✘ 3. 4

✘ 4. 5

Question Type : **MCQ**
Question ID : **37135116844**
Option 1 ID : **37135167373**
Option 2 ID : **37135167374**
Option 3 ID : **37135167375**
Option 4 ID : **37135167376**
Status : **Answered**
Chosen Option : **1**

Q.26

If $A=\begin{bmatrix}2 & 0 & -1\\ 5 & 1 & 0\\ 0 & 1 & 3\end{bmatrix}$ and $A^{-1}=\begin{bmatrix}3 & -1 & 1\\ \propto & 6 & -5\\ \beta & -2 & 2\end{bmatrix}$, then the values of $\propto$ and β are,

respectively

Ans

1. $15,\quad 5$

2. $-15,\quad 5$

3. $15,\quad -5$

4. $-15,\quad -5$

Question Type : **MCQ**
Question ID : **37135116817**
Option 1 ID : **37135167268**
Option 2 ID : **37135167267**
Option 3 ID : **37135167266**
Option 4 ID : **37135167265**
Status : **Answered**
Chosen Option : **2**

Q.27 The rate of decay of certain substance is directly proportional to the amount present at that instant. Initially, there are 27 gms of certain substance and 3 hours later it is found that 8 gms are left , then the amount left after one more hour is

Ans

✗ 1. $\frac{19}{3}$ gms

✗ 2. $\frac{20}{3}$ gms

✗ 3. $\frac{17}{3}$ gms

✓ 4. $\frac{16}{3}$ gms

Question Type : **MCQ**
Question ID : **37135116826**
Option 1 ID : **37135167303**
Option 2 ID : **37135167304**
Option 3 ID : **37135167302**
Option 4 ID : **37135167301**
Status : **Answered**
Chosen Option : **4**

Q.28 The points of discontinuity of the function $f(x) = \frac{1}{x-1}$ if $0 \le x \le 2$

$= \frac{x+5}{x+3}$ if $2 < x \le 4$

in its domain are

Ans

1. $x = 2$ only

2. $x = 1,\ x = 2$

3. $x = 4$ only

4. $x = 0,\ x = 2$

Question Type : **MCQ**
Question ID : **37135116836**
Option 1 ID : **37135167342**
Option 2 ID : **37135167341**
Option 3 ID : **37135167344**
Option 4 ID : **37135167343**
Status : **Answered**
Chosen Option : **2**

Q.29

If $\frac{x}{\sqrt{1+x}}+\frac{y}{\sqrt{1+y}}=0$, $x \neq y$, then $(1+x)^2 \frac{dy}{dx}=$

Ans

✗ 1. $\frac{1}{2}$

✗ 2. 0

✓ 3. -1

✗ 4. 1

Question Type : **MCQ**
Question ID : **37135116843**
Option 1 ID : **37135167372**
Option 2 ID : **37135167369**
Option 3 ID : **37135167370**
Option 4 ID : **37135167371**
Status : **Answered**
Chosen Option : **3**

Q.30 The integrating factor of the differential equation $(1+x^2)\ dt = (\tan^{-1}x - t)\ dx$ is

Ans

1. $-e^{\frac{(\tan^{-1}x)^2}{2}}$

2. $-e^{\tan^{-1}x}$

3. $e^{\frac{(\tan^{-1}x)^2}{2}}$

4. $e^{\tan^{-1}x}$

Question Type : **MCQ**
Question ID : **37135116834**
Option 1 ID : **37135167336**
Option 2 ID : **37135167334**
Option 3 ID : **37135167335**
Option 4 ID : **37135167333**
Status : **Answered**
Chosen Option : **3**

Q.31

$$\int cotx \,.log\,[\,log(sinx)]dx =$$

Ans

1. $log(sinx)\,[log(sinx)) + 1] + c$

2. $log(sinx)\,[log(log(sinx)) + 1] + c$

3. $log(sinx)\,[log(log(sinx)) - 1] + c$

4. $log(sinx)\,[log(sinx) - 1] + c$

Question Type :	**MCQ**
Question ID :	**37135116814**
Option 1 ID :	**37135167256**
Option 2 ID :	**37135167255**
Option 3 ID :	**37135167254**
Option 4 ID :	**37135167253**
Status :	**Answered**
Chosen Option :	**3**

Q.32 If the equation $kxy + 5x + 3y + 2 = 0$ represents a pair of lines, then $k =$

Ans

1. $\frac{15}{2}$

2. $1, \frac{15}{2}$

3. 15

4. $0, \frac{-15}{2}$

Question Type : **MCQ**
Question ID : **37135116827**
Option 1 ID : **37135167307**
Option 2 ID : **37135167306**
Option 3 ID : **37135167308**
Option 4 ID : **37135167305**
Status : **Answered**
Chosen Option : **4**

Q.33

$$\int_0^a \sqrt{\frac{x}{a-x}}\, dx =$$

Ans

1. $\left(\frac{\pi}{4}\right) a$

2. $\pi\, a$

3. $2\,\pi\, a$

4. $\left(\frac{\pi}{2}\right) a$

Question Type : **MCQ**
Question ID : **37135116850**
Option 1 ID : **37135167398**
Option 2 ID : **37135167399**
Option 3 ID : **37135167400**
Option 4 ID : **37135167397**
Status : **Answered**
Chosen Option : **1**

Q.34

If $\int \sqrt{x-\frac{1}{x}}\left(\frac{x^2+1}{x^2}\right)dx = \frac{2}{3}\left(x-\frac{1}{x}\right)^k + c$, then value of k is

Ans

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

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

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

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

Question Type : **MCQ**
Question ID : **37135116816**
Option 1 ID : **37135167261**
Option 2 ID : **37135167262**
Option 3 ID : **37135167263**
Option 4 ID : **37135167264**
Status : **Answered**
Chosen Option : **2**

Q.35 The probability that bomb will miss the target is $0 \cdot 2$. Then the probability that out of 10 bombs dropped exactly 2 will hit the target is

Ans

1. $\frac{288}{5^{10}}$

2. $\frac{144}{5^{9}}$

3. $\frac{144}{5^{10}}$

4. $\frac{288}{5^{9}}$

Question Type : **MCQ**
Question ID : **37135116846**
Option 1 ID : **37135167384**
Option 2 ID : **37135167381**
Option 3 ID : **37135167383**
Option 4 ID : **37135167382**
Status : **Answered**
Chosen Option : **2**

Q.36 The minimum value of $Z = 5x + 8y$ subject to $x + y \geq 5, 0 \leq x \leq 4, y \geq 2, x \geq 0,$

$y \geq 0$ is

Ans

✗ 1. 40

✗ 2. 36

✓ 3. 31

✗ 4. 20

Question Type : **MCQ**
Question ID : **37135116842**
Option 1 ID : **37135167366**
Option 2 ID : **37135167367**
Option 3 ID : **37135167368**
Option 4 ID : **37135167365**
Status : **Answered**
Chosen Option : **4**

Q.37

If the p.m.f. of a r.v. X is given by $P(X = x) = \frac{\binom{5}{x}}{2^5}$ if $x = 0, 1, 2, \ldots \ldots 5$

$= 0$, otherwise

then which of the following is not true?

Ans

1. $P(X \leq 1) = P(X \geq 4)$

2. $P(X \leq 2) \geq P(X \geq 4)$

3. $P(X \leq 3) \leq P(X \geq 3)$

4. $P(X \leq 2) = P(X \geq 3)$

Question Type : **MCQ**
Question ID : **37135116830**
Option 1 ID : **37135167319**
Option 2 ID : **37135167318**
Option 3 ID : **37135167320**
Option 4 ID : **37135167317**
Status : **Answered**
Chosen Option : **3**

Q.38 If the angle between the lines given by the equation

$x^2 - 3xy + \lambda y^2 + 3x - 5y + 2 = 0$, $\lambda \geq 0$, is $\tan^{-1}\left(\frac{1}{3}\right)$, then $\lambda =$

Ans

✗ 1. $\frac{2}{3}$, 40

✗ 2. 10

✗ 3. 1, $\frac{2}{5}$

✓ 4. 2

Question Type : **MCQ**
Question ID : **37135116845**
Option 1 ID : **37135167377**
Option 2 ID : **37135167380**
Option 3 ID : **37135167378**
Option 4 ID : **37135167379**
Status : **Answered**
Chosen Option : **1**

Q.39 If $sin\theta = \frac{-12}{13}$, $cos\phi = \frac{-4}{5}$ and θ, ϕ lie in the third quadrant, then $tan(\theta - \phi) =$

Ans

✗ 1. $\frac{-33}{56}$

✗ 2. $\frac{-56}{33}$

✗ 3. $\frac{56}{33}$

✓ 4. $\frac{33}{56}$

Question Type :	**MCQ**
Question ID :	**37135116828**
Option 1 ID :	**37135167310**
Option 2 ID :	**37135167312**
Option 3 ID :	**37135167311**
Option 4 ID :	**37135167309**
Status :	**Answered**
Chosen Option :	**1**

Q.40 If $x\cos\theta + y\sin\theta = 5$, $x\sin\theta - y\cos\theta = 3$, then the value of $x^2 + y^2 =$

Ans

✗ 1. 17

✗ 2. 8

✗ 3. 12

✓ 4. 34

Question Type : **MCQ**
Question ID : **37135116801**
Option 1 ID : **37135167203**
Option 2 ID : **37135167201**
Option 3 ID : **37135167202**
Option 4 ID : **37135167204**
Status : **Answered**
Chosen Option : **4**

Q.41

If $[\bar{a}\ \ \bar{b}\ \ \bar{c}] \neq 0$, then $\dfrac{[\bar{a}+\bar{b}\ \ \bar{b}+\bar{c}\ \ \bar{c}+\bar{a}]}{[\bar{b}\ \ \bar{c}\ \ \bar{a}]} =$

Ans

✗ 1. 0

✗ 2. 1

✓ 3. 2

✗ 4. 4

Question Type : **MCQ**
Question ID : **37135116802**
Option 1 ID : **37135167208**
Option 2 ID : **37135167206**
Option 3 ID : **37135167207**
Option 4 ID : **37135167205**
Status : **Answered**
Chosen Option : **3**

Q.42

The equation of tangent at $P(-4, -4)$ on the curve $x^2 = -4y$ is

Ans

1. $2x + y + 4 = 0$

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

3. $2x + y - 4 = 0$

4. $3x - y + 8 = 0$

Question Type : **MCQ**
Question ID : **37135116823**
Option 1 ID : **37135167289**
Option 2 ID : **37135167292**
Option 3 ID : **37135167291**
Option 4 ID : **37135167290**
Status : **Answered**
Chosen Option : **2**

Q.43 The angle between the line $\vec{r} = (\hat{i} + \hat{j} - \hat{k}) + \lambda(3\hat{i} + \hat{j})$ and the plane $\vec{r} \cdot (\hat{i} + 2\hat{j} + 3\hat{k}) = 8$ is

Ans

1. $\sin^{-1}\left(\frac{2\sqrt{7}}{\sqrt{5}}\right)$

2. $\sin^{-1}\left(\frac{3\sqrt{7}}{\sqrt{5}}\right)$

3. $\sin^{-1}\left(\frac{\sqrt{5}}{2\sqrt{7}}\right)$

4. $\sin^{-1}\left(\frac{\sqrt{7}}{3\sqrt{5}}\right)$

Question Type : **MCQ**
Question ID : **37135116840**
Option 1 ID : **37135167357**
Option 2 ID : **37135167359**
Option 3 ID : **37135167358**
Option 4 ID : **37135167360**
Status : **Answered**
Chosen Option : **3**

Q.44

In a triangle ABC if $\frac{\sin A-\sin C}{\cos C-\cos A}=\cot B$, then A , B, C are in

Ans

1. Arithmetico - Geometric progression

2. Harmonic Progression

3. Geometric progression

4. Arithmetic progression

Question Type :	**MCQ**
Question ID :	**37135116832**
Option 1 ID :	**37135167328**
Option 2 ID :	**37135167327**
Option 3 ID :	**37135167326**
Option 4 ID :	**37135167325**
Status :	**Answered**
Chosen Option :	**3**

Q.45

$$\int_0^{\frac{\pi}{2}} log\left[\sqrt{\frac{1-\cos 2x}{1+\cos 2x}}\right] dx =$$

Ans

✗ 1. 1

✗ 2. $\frac{\pi}{4}$

✓ 3. 0

✗ 4. $\frac{\pi}{8}$

Question Type :	**MCQ**
Question ID :	**37135116808**
Option 1 ID :	**37135167230**
Option 2 ID :	**37135167231**
Option 3 ID :	**37135167229**
Option 4 ID :	**37135167232**
Status :	**Answered**
Chosen Option :	**3**

Q.46 The approximate value of the function $f(x) = x^3 - 3x + 5$ at $x = 1.99$ is

Ans

✔ 1. 6.91

✘ 2. 6.94

✘ 3. 7.94

✘ 4. 7.91

Question Type : **MCQ**
Question ID : **37135116818**
Option 1 ID : **37135167272**
Option 2 ID : **37135167271**
Option 3 ID : **37135167270**
Option 4 ID : **37135167269**
Status : **Answered**
Chosen Option : **2**

Q.47 The radius of the circle passing through the points $(5, 7)$, $(2, -2)$ and $(-2, 0)$ is

Ans

✘ 1. 2 units

✔ 2. 5 units

✘ 3. 4 units

✘ 4. 3 units

Question Type : **MCQ**
Question ID : **37135116838**
Option 1 ID : **37135167349**
Option 2 ID : **37135167352**
Option 3 ID : **37135167351**
Option 4 ID : **37135167350**
Status : **Answered**
Chosen Option : **2**

Q.48 If $p \rightarrow (\sim p \vee q)$ is false, then the truth values of p and q are respectively

Ans

1. F , T

2. F , F

3. T , T

4. T , F

Question Type : **MCQ**
Question ID : **37135116819**
Option 1 ID : **37135167275**
Option 2 ID : **37135167276**
Option 3 ID : **37135167273**
Option 4 ID : **37135167274**
Status : **Answered**
Chosen Option : **4**

Q.49 The cartesian co-ordinates of the point on the parabola $y^2 = x$ whose parameter is $\frac{-4}{3}$ are

Ans

✗ 1. $\left(\frac{4}{9}, \frac{4}{3}\right)$

✗ 2. $\left(\frac{4}{3}, \frac{-4}{3}\right)$

✗ 3. $\left(\frac{4}{3}, \frac{4}{9}\right)$

✓ 4. $\left(\frac{4}{9}, \frac{-2}{3}\right)$

Question Type : **MCQ**
Question ID : **37135116810**
Option 1 ID : **37135167239**
Option 2 ID : **37135167237**
Option 3 ID : **37135167238**
Option 4 ID : **37135167240**
Status : **Answered**
Chosen Option : **4**

Q.50 If $A = \{x, y, z\}$, $B = \{1, 2\}$, then the total number of relations from set A to set B are

Ans

✔ 1. 64

✘ 2. 16

✘ 3. 32

✘ 4. 8

Question Type : **MCQ**
Question ID : **37135116820**
Option 1 ID : **37135167277**
Option 2 ID : **37135167279**
Option 3 ID : **37135167280**
Option 4 ID : **37135167278**
Status : **Answered**
Chosen Option : **3**