

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 $3\mu\text{F}$. With the introduction of a dielectric medium between the plates, the capacitance becomes $15\mu\text{F}$. The permittivity of the medium in SI unit is $[\epsilon_0 = 8.85 \times 10^{-12} \text{ SI unit}]$

Ans

 1. 15

 2. 8.845×10^{-11}

 3. 0.4425×10^{-10}

 4. 5

Question Type : MCQ

Question ID : 37135116748

Option 1 ID : 37135166990

Option 2 ID : 37135166992

Of

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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

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Chosen Option : 1

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 $2000 \frac{\text{A}}{\text{m}}$. The magnetic flux through the rod is $6 \times 10^{-4} \text{ Wb}$ and its cross-sectional area is 3cm^2 . The magnetic permeability of the rod in $\frac{\text{Wb}}{\text{A-m}}$ 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, α = angular acceleration, V = linear velocity)

Ans

☒ 1. $\frac{r\alpha}{V}$

☒ 2. $\frac{V^2}{r\alpha}$

☒ 3. $\frac{r^2\alpha}{V^2}$

☒ 4. $\frac{r\alpha^2}{V^2}$

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

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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 J

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

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

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

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

Chosen

Q.14 Two waves $Y_1 = 0.25 \sin 316 t$ and $Y_2 = 0.25 \sin 310 t$ 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 $\frac{\text{m}}{\text{s}}$ is $[\cos 60^\circ = 0.5]$

Ans

☒ 1. $\sqrt{0.35}$

☒ 2. $\sqrt{0.65}$

☒ 3. $\sqrt{0.75}$

☒ 4. $\sqrt{0.20}$

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

Chose

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 16Ω 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

Chosen

Q.25

A monoatomic gas of pressure '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

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 $1000\ \Omega$, peak value of input signal voltage is 5 mV and $\beta = 60$. The peak value of output current is

Ans

 1. $0.5 \times 10^{-4}\text{ A}$

 2. $3 \times 10^{-4}\text{ A}$

 3. $2 \times 10^{-5}\text{ A}$

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

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
($r > R$, ϵ_0 = permittivity of free space)

Ans

☒ 1. $\epsilon_0 E \frac{R}{r}$

☒ 2. $\epsilon_0 E \left(\frac{r}{R}\right)^2$

☒ 3. $\epsilon_0 E \frac{r}{R}$

☒ 4. $\epsilon_0 E \left(\frac{R}{r}\right)^2$

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, $\frac{R}{C_v} = 0.4$ 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' respectively. 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 $R = 4\Omega$, $C = 80\mu\text{F}$ and $L = 200\text{ mH}$. 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

Chosen

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

Ans

☒ 1. $\cos^{-1}(-0.3)$

☒ 2. $\cos^{-1}(-0.6)$

☒ 3. $\cos^{-1}(-0.4)$

☒ 4. $\cos^{-1}(-0.5)$

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. $q (\vec{V} \times \vec{B})$

☒ 2. $q \vec{E} + q (\vec{V} \times \vec{B})$

☒ 3. $q (\vec{E} \times \vec{V})$

☒ 4. $q (\vec{B} \times \vec{V})$

Question Type : MCQ

Question ID : 37135116747

Option 1 ID : 37135166985

Option 2 ID : 37135166986

Option 3 ID : 37135166988

Option 4 ID : 37135166987

Chose

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 $\frac{\rho'}{\rho}$ 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 3.4 g cm^{-3} , what is the edge length of unit cell? (Molar mass = 98.99)

Ans

☒ 1. $7.783 \text{ \AA}$

☒ 2. $5.783 \text{ \AA}$

☒ 3. $8.780 \text{ \AA}$

☒ 4. $6.083 \text{ \AA}$

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. $\oplus$

☒ 2. $\circ\circ$

☐ 3. $\circ\circ\circ$

☐ 4. $\ominus$

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 0.40 F of electricity is passed through an electrolytic solution?

Ans

☒ 1. 6.642×10^{25}

☒ 2. 2.4088×10^{23}

☒ 3. 1.505×10^{24}

☒ 4. 6.022×10^{23}

Question Type : MCQ

Question ID : 37135116778

Option 1 ID : 37135167112

Option 2 ID : 37135167109

Option 3 ID : 37135167111

Option 4 ID : 37135167110

Chosen

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. Neodymium

 4. Cerium

Question Type : MCQ

Question ID : 37135116757

Option 1 ID : 37135167028

Option 2 ID : 37135167027

Option 3 ID : 37135167026

Option 4 ID : 37135167025

Chosen

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

Chosen

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

Or

Chose

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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



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

Of

Chose

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Q.18 A first order reaction has rate constant $1 \times 10^{-2} \text{ s}^{-1}$. 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

Chosen

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

Of

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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. 0.512 mol dm^{-3}

 2. 0.32 mol dm^{-3}

 3. 0.032 mol dm^{-3}

 4. 0.02 mol dm^{-3}

Question Type : MCQ

Question ID : 37135116779

Option 1 ID : 37135167113

Option 2 ID : 37135167115

Option 3 ID : 37135167116

Of

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Chosen Option : 2

Q.24 If a centimolal aqueous solution of $K_3[Fe(CN)_6]$ 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

Chosen

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, $\text{rate} = k[A]^x$?

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 : 37135167152

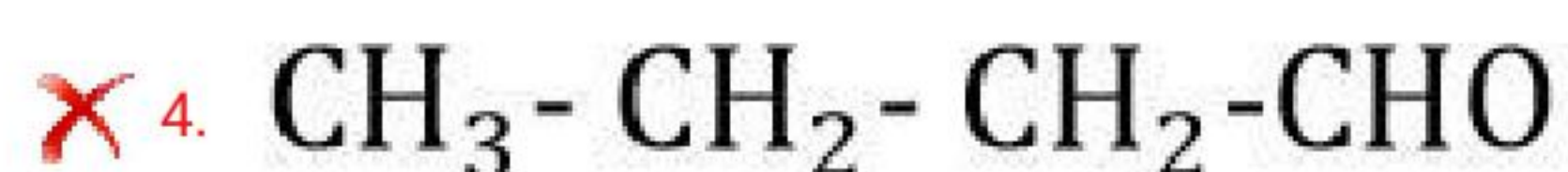
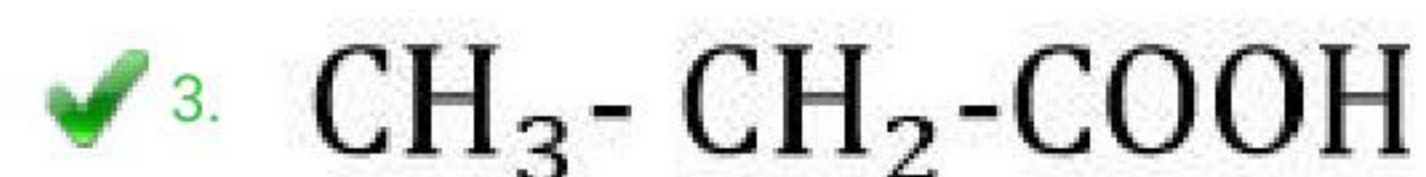
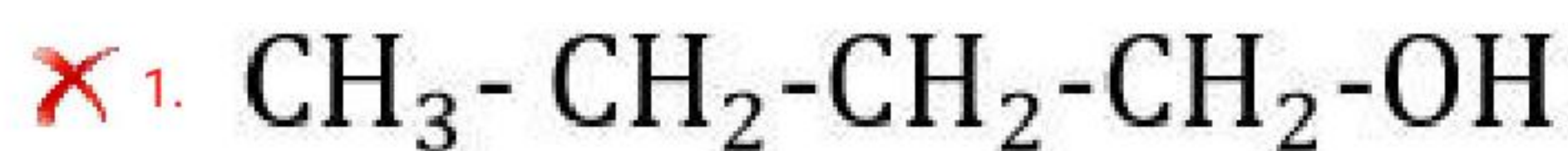
Option 4 ID : 37135167151

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Q.30

Which among the following compounds has highest boiling point?

Ans



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

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 length of the unit cell is $3\text{\AA}$, 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. 1.33×10^{20}
- ✗ 2. 2×10^{24}
- ✗ 3. 2.7×10^{22}
- ✓ 4. 5×10^{23}

Question Type : MCQ

Question ID : 37135116768

Option 1 ID : 37135167069

Option 2 ID : 37135167072

Option 3 ID : 37135167073

Option 4 ID : 37135167074

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Q.36

Which among the following compounds belongs to lipids?

Ans

☒ 1. Cloroxyleneol

☒ 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 $[\text{Zn}(\text{NH}_3)_4]\text{SO}_4$?
(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

Q.38

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

Ans

✓ 1. 108.9°

✗ 2. 107°

✗ 3. 109.5°

✗ 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 antioxidant?

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

Of

Chose

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Q.40

Alkyl cyanides 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

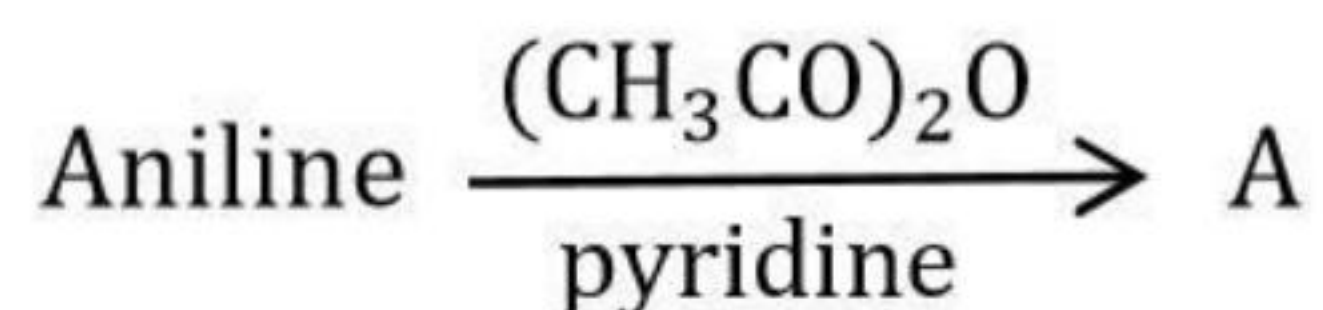
Of

Chose

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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 $124.3 \Omega^{-1} \text{cm}^2 \text{mol}^{-1}$ and $1.243 \times 10^{-4} \Omega^{-1} \text{cm}^2$ respectively?

Ans

✓ 1. 0.001 mol L^{-1}

✗ 2. 0.01 mol L^{-1}

✗ 3. 0.02 mol L^{-1}

✗ 4. 0.1 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

Of

Of

ZOLLEGE.in

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. $[\text{Cr}(\text{H}_2\text{O})_6]^{3+} \cdot 3\text{Cl}^-$

☐ 2. $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$

☐ 3. $[\text{Cu}(\text{H}_2\text{O})_2(\text{NH}_3)_5]\text{Cl}_2$

☒ 4. $\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$

Question Type : MCQ

Question ID : 37135116786

Option 1 ID : 37135167141

Option 2 ID : 37135167142

Option 3 ID : 37135167143

Option 4 ID : 37135167144

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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

Of

Chose

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Q.49 A solution has an osmotic pressure of 'x' kPa at 300K having 1 mole of solute in 10.5m^3 of solution. If it's osmotic pressure is reduced to $\left(\frac{1}{10}\right)^{\text{th}}$ 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. 11.0m^3

Question Type : MCQ

Question ID : 37135116760

Option 1 ID : 37135167038

Option 2 ID : 37135167039

Option 3 ID : 37135167040

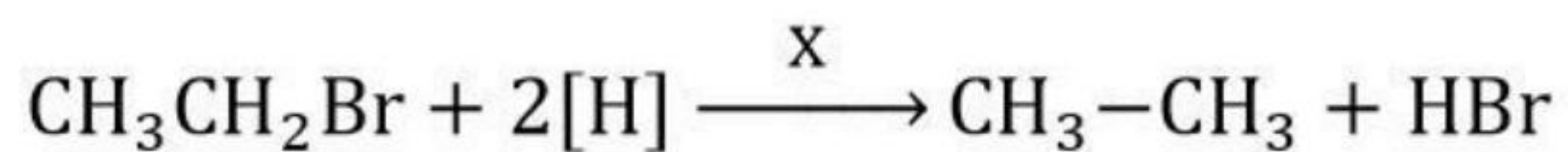
Option 4 ID : 37135167037

Status : Answered

Chosen Option : 2

Q.50

Identify the catalyst X used in following reaction?



Ans

 1. CaO, Δ

 2. Zn-Cu Couple in alcohol

 3. KMnO_4

 4. $\text{K}_2\text{Cr}_2\text{O}_7$

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 $f \circ f$ 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

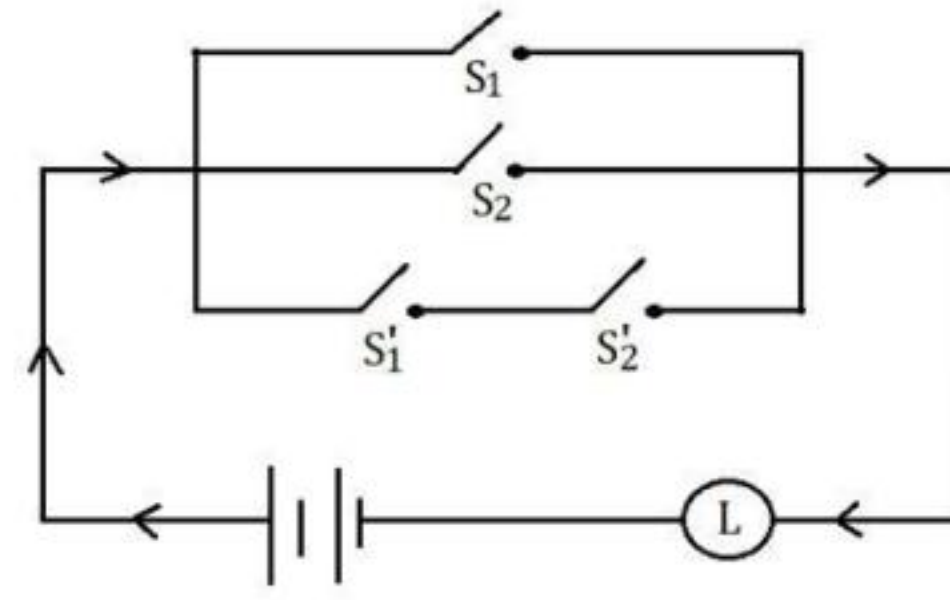
Option 3 ID : 37135167293

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 $\frac{\cos A}{a} = \frac{\cos B}{b} = \frac{\cos C}{c}$, 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 $\int \frac{\sin \theta}{\sin 3\theta} d\theta = \frac{1}{2k} \log \left| \frac{k + \tan \theta}{k - \tan \theta} \right| + c$, 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 $f(x) = \log(\sin x)$, $x \in \left[\frac{\pi}{6}, \frac{5\pi}{6}\right]$, 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

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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

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

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 $f(x) = \log(\sec x + \tan x)$, then $f'\left(\frac{\pi}{4}\right) =$

Ans

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

respectively

Ans

 1. 15, 5

 2. -15, 5

 3. 15, -5

 4. -15, -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 $0 \leq x \leq 2$
 $= \frac{x+5}{x+3}$ if $2 < x \leq 4$

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

$$\int \cot x \cdot \log [\log(\sin x)] dx =$$

Ans  1.

$$\log(\sin x) [\log(\sin x)) + 1] + c$$

 2.

$$\log(\sin x) [\log(\log(\sin x)) + 1] + c$$

 3.

$$\log(\sin x) [\log(\log(\sin x)) - 1] + c$$

 4. $\log(\sin x) [\log(\sin x) - 1] + c$

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. πa

✗ 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 0.2 . 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 $x = 0, 1, 2, \dots, 5$
 $= 0$, 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

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

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 $\frac{[\bar{a}+\bar{b} \ \bar{b}+\bar{c} \ \bar{c}+\bar{a}]}{[\bar{b} \ \bar{c} \ \bar{a}]} =$

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

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

$$\vec{r} \cdot (\hat{i} + 2\hat{j} + 3\hat{k}) = 8 \text{ is}$$

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.

☐ 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