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State Common Entrance Test Cell,
Maharashtra State

MHT CET 2020 Question Paper

PCM

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Test Center Name:	Jawahar Institute of Technology Nashik
Test Date:	16/10/2020
Test Time:	9:00 AM - 12:00 PM
Subject:	PCM

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

17.

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

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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

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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

13

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**

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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. $\frac{R}{4}$

2

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

13

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

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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. $\frac{e^3}{2\epsilon_0 hc}$

18

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

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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

15

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**

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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

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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

3

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**

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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. $\frac{2R}{\pi V}$

1

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

4

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

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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

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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

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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. $\sqrt{0 \cdot 20}$

22

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

5

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

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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

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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.

20

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.

19

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

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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

6

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

1 5

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

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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

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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

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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. $\frac{mgA}{2L}$

4

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

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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. $\frac{A}{\mu}$

25

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.

23

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

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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. $2 : 1$

6

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. $1 : 3$

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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

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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}

18

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

8

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

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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. $\frac{h^2}{2I^2\pi^2}$

16

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**

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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

19

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

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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)

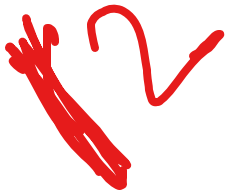
Ans

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**

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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

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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. $\frac{mM}{e}$

15

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**

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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**

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

17

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

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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

17

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

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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

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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

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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

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

23

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

16

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

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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. $\cos^{-1}(-0\cdot5)$

22

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

16

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

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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

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

24

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**

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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**

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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**

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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**

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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

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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

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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**

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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

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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**

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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

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

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

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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

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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**

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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**

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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

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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

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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

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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

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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**

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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

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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

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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**

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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

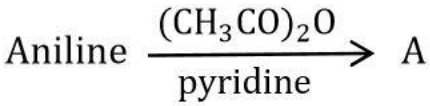
Question Type : MCQ
Question ID : 37135116771
Option 1 ID : 37135167082
Option 2 ID : 37135167083
Option 3 ID : 37135167081
Option 4 ID : 37135167084
Status : Answered
Chosen Option : 3

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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**

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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**

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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

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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**
Option 4 ID : **37135167121**
Status : **Answered**
Chosen Option : **4**

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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**

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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**

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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

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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**

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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. $\frac{5}{2}$

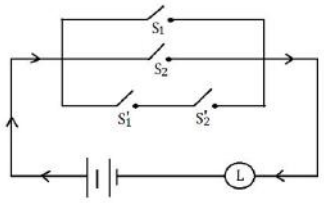
4. $\frac{-5}{2}$

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

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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**

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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**

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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

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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**

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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**

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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**

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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**

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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**

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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**

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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**

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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**

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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**

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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**

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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**

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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

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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**

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

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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**

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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

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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

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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

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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**

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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

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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

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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**

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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

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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**

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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

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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**

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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**

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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**

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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**

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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**

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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. $\frac{2}{3}, \quad 40$

✗ 2. 10

✗ 3. $1, \quad \frac{2}{5}$

✓ 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**

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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

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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

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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**

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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**

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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

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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**

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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**

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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**

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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

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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**

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