# MHT CET 2nd and 3rd May 2019

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|---|---|
| Test Date | 02/05/2019 |
| Test Time | 2:00 PM - 5:00 PM |
| Subject | PCM |

Section : **Physics**

**Q.1 A metal surface is illuminated by light of given intensity and frequency to cause photoemission. If the intensity of illumination is reduced to one fourth of its original value then the maximum K.E. of the emitted photoelectrons would be**

**Ans**

✗ 1. twice the original value.

✗ 2. four times the original value.

✗ 3. one fourth of the original value.

✓ 4. unchanged.

Question Type : **MCQ**
Question ID : **588552796**
Option 1 ID : **5885523183**
Option 2 ID : **5885523184**
Option 3 ID : **5885523182**
Option 4 ID : **5885523181**
Status : **Answered**
Chosen Option : **4**

**Q.2 Torque acting on a rectangular coil carrying current 'I' situated parallel to magnetic field of induction 'B', having number of turns 'n' and area 'A' is**

**Ans**

✗ 1. $nI(\hat{A} \cdot \hat{B})$

✗ 2. $\frac{nBA}{I}$

✓ 3. $nI(\vec{A} \times \vec{B})$

✗ 4. $\frac{IBA}{n}$

Question Type : **MCQ**
Question ID : **588552781**
Option 1 ID : **5885523122**
Option 2 ID : **5885523124**
Option 3 ID : **5885523121**
Option 4 ID : **5885523123**
Status : **Answered**
Chosen Option : **3**

**Q.3**

A force $(\vec{F}) = -5\hat{i} - 7\hat{j} + 3\hat{k}$ acting on a particle causes a displacement $(\vec{s}) = 3\hat{i} - 2\hat{j} + a\hat{k}$ in its own direction. If the work done is 14 J, then the value of 'a' is

**Ans**

✗ 1. 0

✓ 2. 5

✗ 3. 15

✗ 4. 1

Question Type : **MCQ**
Question ID : **588552797**
Option 1 ID : **5885523188**
Option 2 ID : **5885523186**
Option 3 ID : **5885523185**
Option 4 ID : **5885523187**
Status : **Answered**
Chosen Option : **2**

**Q.4 When the electron in hydrogen atom jumps from fourth Bohr orbit to second Bohr orbit, one gets the**

**Ans**

✓ 1. second line of Balmer series.

✗ 2. first line of Balmer series.

✗ 3. first line of Pfund series.

✗ 4. second line of Paschen series.

Question Type : **MCQ**
Question ID : **588552790**
Option 1 ID : **5885523158**
Option 2 ID : **5885523160**
Option 3 ID : **5885523159**
Option 4 ID : **5885523157**
Status : **Answered**
Chosen Option : **1**

**Q.5 Light of wavelength 'λ' is incident on a single slit of width 'a' and the distance between slit and screen is 'D'. In diffraction pattern, if slit width is equal to the width of the central maximum then 'D' is equal to**

**Ans**

✗ 1. $a / 2\lambda$

✓ 2. $a^2 / 2\lambda$

✗ 3. $a / \lambda$

✗ 4. $a^2 / \lambda$

Question Type : **MCQ**
Question ID : **588552789**
Option 1 ID : **5885523154**
Option 2 ID : **5885523153**
Option 3 ID : **5885523156**
Option 4 ID : **5885523155**
Status : **Answered**
Chosen Option : **2**

**Q.6** In U. C. M., when time interval $\delta t \to 0$, the angle between change in velocity $(\delta\vec{V})$ and linear velocity $(\vec{V})$ will be

**Ans**

✗ 1. 0°

✔ 2. 90°

✗ 3. 180°

✗ 4. 45°

Question Type : **MCQ**
Question ID : **588552760**
Option 1 ID : **5885523037**
Option 2 ID : **5885523039**
Option 3 ID : **5885523040**
Option 4 ID : **5885523038**
Status : **Answered**
Chosen Option : **2**

**Q.7 A stretched string fixed at both ends has 'm' nodes, then the length of the string will be**

**Ans**

✔ 1. $(m-1)\frac{\lambda}{2}$

✗ 2. $\frac{(m+1)\lambda}{2}$

✗ 3. $\frac{m\lambda}{2}$

✗ 4. $(m-2)\frac{\lambda}{2}$

Question Type : **MCQ**
Question ID : **588552778**
Option 1 ID : **5885523109**
Option 2 ID : **5885523112**
Option 3 ID : **5885523111**
Option 4 ID : **5885523110**
Status : **Answered**
Chosen Option : **2**

**Q.8 A particle is performing a linear simple harmonic motion of amplitude 'A'. When it is midway between its mean and extreme position, the magnitudes of its velocity and acceleration are equal. What is the periodic time of the motion?**

**Ans**

✔ 1. $\frac{2\pi}{\sqrt{3}}$ s

✗ 2. $\frac{\sqrt{3}}{2\pi}$ s

✗ 3. $2\pi\sqrt{3}$ s

✗ 4. $\frac{1}{2\pi\sqrt{3}}$ S

Question Type : **MCQ**
Question ID : **588552774**
Option 1 ID : **5885523093**
Option 2 ID : **5885523094**
Option 3 ID : **5885523096**
Option 4 ID : **5885523095**
Status : **Answered**
Chosen Option : **1**

**Q.9 Three identical rods each of mass 'M' and length 'L' are joined to form a symbol 'H'. The moment of inertia of the system about one of the sides of 'H' is**

**Ans**

✗ 1. $2\,ML^2/3$

✗ 2. $ML^2/2$

✗ 3. $ML^2/6$

✓ 4. $4\,ML^2/3$

Question Type : **MCQ**
Question ID : **588552769**
Option 1 ID : **5885523074**
Option 2 ID : **5885523075**
Option 3 ID : **5885523076**
Option 4 ID : **5885523073**
Status : **Answered**
Chosen Option : **4**

**Q.10 The luminous border that surrounds the profile of a mountain just before sun rises behind it, is an example of**

**Ans**

✗ 1. dispersion.

✗ 2. total internal reflection.

✗ 3. interference.

✓ 4. diffraction.

Question Type : **MCQ**
Question ID : **588552751**
Option 1 ID : **5885523002**
Option 2 ID : **5885523003**
Option 3 ID : **5885523001**
Option 4 ID : **5885523004**
Status : **Answered**
Chosen Option : **4**

**Q.11 A block of mass 'm' moving on a frictionless surface at speed 'V' collides elastically with a block of same mass, initially at rest. Now the first block moves at an angle 'θ' with its initial**

direction and has speed '$V_1$'. The speed of the second block after collision is

Ans

✗ 1. $\sqrt{V_1^2 - V^2}$

✓ 2. $\sqrt{V^2 - V_1^2}$

✗ 3. $\sqrt{V^2 + V_1^2}$

✗ 4. $\sqrt{V - V_1}$

Question Type : **MCQ**
Question ID : **588552799**
Option 1 ID : **5885523194**
Option 2 ID : **5885523193**
Option 3 ID : **5885523195**
Option 4 ID : **5885523196**
Status : **Answered**
Chosen Option : **2**

**Q.12** Three point masses each of mass 'm' are kept at the corners of an equilateral triangle of side 'L'. The system rotates about the center of the triangle without any change in the separation of masses during rotation. The period of rotation is directly proportional to ($\cos 30^0 = \sin 60^0 = \sqrt{3}/2$)

Ans

✗ 1. $\sqrt{L}$

✓ 2. $L^{3/2}$

✗ 3. $L$

✗ 4. $L^{-2}$

Question Type : **MCQ**
Question ID : **588552766**
Option 1 ID : **5885523064**
Option 2 ID : **5885523061**
Option 3 ID : **5885523063**
Option 4 ID : **5885523062**
Status : **Answered**
Chosen Option : **2**

**Q.13** **Two pendulums begin to swing simultaneously. The first pendulum makes nine full oscillations when the other makes seven. The ratio of the lengths of the two pendulums is**

Ans

1. $\frac{49}{81}$

2. $\frac{64}{81}$

3. $\frac{8}{9}$

4. $\frac{7}{9}$

Question Type : **MCQ**
Question ID : **588552788**
Option 1 ID : **5885523151**
Option 2 ID : **5885523152**
Option 3 ID : **5885523150**
Option 4 ID : **5885523149**
Status : **Answered**
Chosen Option : **1**

**Q.14 When light enters glass from vacuum, then the wavelength of light**

Ans

1. decreases.
2. becomes zero.
3. remains same.
4. increases.

Question Type : **MCQ**
Question ID : **588552786**
Option 1 ID : **5885523142**
Option 2 ID : **5885523143**
Option 3 ID : **5885523144**
Option 4 ID : **5885523141**
Status : **Answered**
Chosen Option : **1**

**Q.15 Which one of the following statement is correct ?**

Ans

1. Surface energy is potential energy per unit length.
2. Surface tension is work done per unit area.
3. Surface tension is work done per unit length.
4. Surface energy is work done per unit force.

Question Type : **MCQ**
Question ID : **588552773**
Option 1 ID : **5885523092**
Option 2 ID : **5885523090**

Option 3 ID : **5885523089**
Option 4 ID : **5885523091**
Status : **Answered**
Chosen Option : **2**

**Q.16** **What is the minimum energy required to launch a satellite of mass 'm' from the surface of the earth of mass 'M' and radius 'R' at an altitude 2 R?**

**Ans**

✗ 1. $\frac{GMm}{2R}$

✓ 2. $\frac{2GMm}{3R}$

✗ 3. $\frac{GMm}{3R}$

✗ 4. $\frac{5GMm}{6R}$

Question Type : **MCQ**
Question ID : **588552800**
Option 1 ID : **5885523197**
Option 2 ID : **5885523200**
Option 3 ID : **5885523198**
Option 4 ID : **5885523199**
Status : **Answered**
Chosen Option : **2**

**Q.17** **A wire of length 'L' and area of cross section 'A' is made of material of Young's modulus 'Y'. It is stretched by an amount '$x$' The work done in stretching the wire is**

**Ans**

✓ 1. $\frac{Yx^2A}{2L}$

✗ 2. $\frac{2Yx^2A}{L}$

✗ 3. $\frac{YxA}{2L}$

✗ 4. $\frac{Yx^2A}{2}$

Question Type : **MCQ**
Question ID : **588552767**
Option 1 ID : **5885523067**
Option 2 ID : **5885523068**
Option 3 ID : **5885523065**
Option 4 ID : **5885523066**
Status : **Answered**
Chosen Option : **1**

**Q.18** **In a parallel plate air capacitor the distance between plates is reduced to one fourth and the space between them is filled with a dielectric medium of constant 2. If the initial capacity of the capacitor is 4μF, then its new capacity is**

**Ans**
✔ 1. 32 μF
✘ 2. 18 μF
✘ 3. 8 μF
✘ 4. 44 μF

Question Type : **MCQ**
Question ID : **588552793**
Option 1 ID : **5885523171**
Option 2 ID : **5885523170**
Option 3 ID : **5885523169**
Option 4 ID : **5885523172**
Status : **Answered**
Chosen Option : **1**

**Q.19** **An aircraft is moving with uniform velocity 150 m/s in the space. If all the forces acting on it are balanced, then it will**

**Ans**
✔ 1. keep moving with same velocity.
✘ 2. remain floating at its place.
✘ 3. escape in space.
✘ 4. fall down on earth.

Question Type : **MCQ**
Question ID : **588552795**
Option 1 ID : **5885523177**
Option 2 ID : **5885523180**
Option 3 ID : **5885523179**
Option 4 ID : **5885523178**
Status : **Answered**
Chosen Option : **1**

**Q.20** **In case of p-n junction diode, the width of depletion region is**

**Ans**
✘ 1. decreased with heavy doping.
✔ 2. increased by reverse biasing.
✘ 3. decreased with light doping.
✘ 4. increased by forward biasing.

Question Type : **MCQ**
Question ID : **588552783**
Option 1 ID : **5885523130**
Option 2 ID : **5885523129**
Option 3 ID : **5885523131**

Option 4 ID : **5885523132**
Status : **Answered**
Chosen Option : **2**

**Q.21** **In the study of transistor as an amplifier, the ratio of collector current to emitter current is 0.98 then the ratio of collector current to base current will be**

**Ans**

✗ 1. 99

✓ 2. 49

✗ 3. 50

✗ 4. 98

Question Type : **MCQ**
Question ID : **588552764**
Option 1 ID : **5885523056**
Option 2 ID : **5885523053**
Option 3 ID : **5885523054**
Option 4 ID : **5885523055**
Status : **Answered**
Chosen Option : **2**

**Q.22** **A stretched wire of length 260 cm is set into vibrations. It is divided into three segments whose frequencies are in the ratio 2:3:4. Their lengths must be**

**Ans**

✗ 1. 80 cm, 60 cm, 120 cm

✓ 2. 120 cm, 80 cm, 60 cm

✗ 3. 60 cm, 80 cm, 120 cm

✗ 4. 120 cm, 60 cm, 80 cm

Question Type : **MCQ**
Question ID : **588552755**
Option 1 ID : **5885523020**
Option 2 ID : **5885523017**
Option 3 ID : **5885523018**
Option 4 ID : **5885523019**
Status : **Answered**
Chosen Option : **2**

**Q.23** The force 'F' acting on a body of density 'd' are related by the relation $F = \frac{y}{\sqrt{d}}$. The dimensions of 'y' are

**Ans**

✓ 1. $[L^{-\frac{1}{2}} M^{\frac{3}{2}} T^{-2}]$

✗ 2. $[L^{-1} M^{\frac{1}{2}} T^{-2}]$

✗ 3. $[L^{-1} M^{\frac{3}{2}} T^{-2}]$

✗ 4. $[L^{-\frac{1}{2}} M^{\frac{1}{2}} T^{-2}]$

Question Type : **MCQ**
Question ID : **588552756**

Option 1 ID : **5885523022**
Option 2 ID : **5885523024**
Option 3 ID : **5885523023**
Option 4 ID : **5885523021**
Status : **Answered**
Chosen Option : **1**

**Q.24** **The magnetization of bar magnet of length 5 cm, cross sectional area 2 $cm^2$ and net magnetic moment 1 $Am^2$ is**

**Ans**

✗ 1. $3 \times 10^5$ A/m

✗ 2. $4 \times 10^5$ A/m

✗ 3. $2 \times 10^5$ A/m

✓ 4. $1 \times 10^5$ A/m

Question Type : **MCQ**
Question ID : **588552770**
Option 1 ID : **5885523079**
Option 2 ID : **5885523080**
Option 3 ID : **5885523078**
Option 4 ID : **5885523077**
Status : **Answered**
Chosen Option : **4**

**Q.25** **The dimensions of self or mutual inductance are given as**

**Ans**

✗ 1. $[L^{-2}M^{1}T^{-2}I^{-2}]$

✗ 2. $[L^{2}M^{2}T^{-2}I^{-2}]$

✓ 3. $[L^{2}M^{1}T^{-2}I^{-2}]$

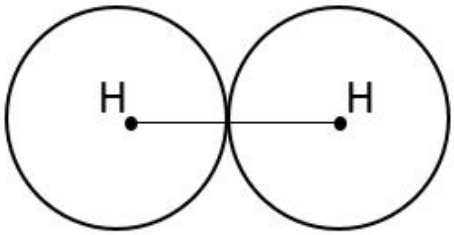
✗ 4. $[L^{2}M^{2}T^{-2}I^{-1}]$

Question Type : **MCQ**
Question ID : **588552785**
Option 1 ID : **5885523140**
Option 2 ID : **5885523137**
Option 3 ID : **5885523138**
Option 4 ID : **5885523139**
Status : **Answered**
Chosen Option : **3**

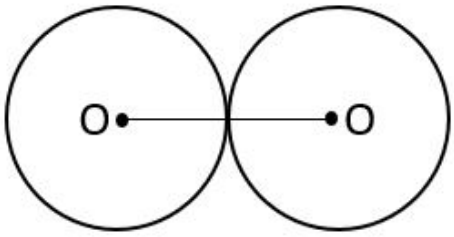
**Q.26** **Which of the following molecules is a polar molecule ?**

**Ans**

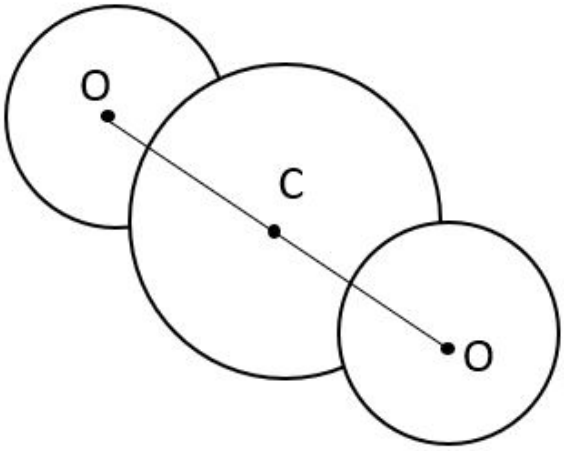
✗ 1.



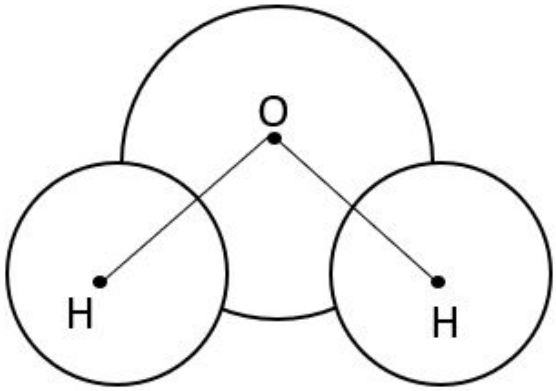

✗ 2.




✗ 3.




✓ 4.

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|---|---|
| Question Type : | **MCQ** |
| Question ID : | **588552762** |
| Option 1 ID : | **5885523045** |
| Option 2 ID : | **5885523048** |
| Option 3 ID : | **5885523046** |
| Option 4 ID : | **5885523047** |
| Status : | **Answered** |
| Chosen Option : | **4** |

**Q.27 Magnetic susceptibility of a paramagnetic substance is**

**Ans**

✗ 1. large and positive.

✓ 2. small and positive.

✗ 3. small and negative.

✗ 4. large and negative.

Question Type : **MCQ**
Question ID : **588552791**
Option 1 ID : **5885523163**
Option 2 ID : **5885523161**
Option 3 ID : **5885523162**
Option 4 ID : **5885523164**
Status : **Answered**
Chosen Option : **2**

**Q.28** **A circular coil of wire consisting of 100 turns each of radius 9 cm carries a current of 0.4 A. The magnitude of the magnetic field at the centre of coil is [$\mu_0 = 12.56\times10^{-7}$ S.I. Unit]**

**Ans**

✗ 1. $2.4\times10^{-11}$ T

✗ 2. $2.79\times10^{-5}$ T

✓ 3. $2.79\times10^{-4}$ T

✗ 4. $2.79\times10^{-3}$ T

Question Type : **MCQ**
Question ID : **588552780**
Option 1 ID : **5885523117**
Option 2 ID : **5885523118**
Option 3 ID : **5885523119**
Option 4 ID : **5885523120**
Status : **Answered**
Chosen Option : **3**

**Q.29** A simple harmonic progressive wave is represented as y = 0.03 $\sin\pi\ (2t - 0.01x)m$. At a given instant of time, the phase difference between two particles 25 m apart is

**Ans**

✗ 1. $\pi$ *rad*

✗ 2. $\frac{\pi}{2}rad$

✓ 3. $\frac{\pi}{4}rad$

✗ 4. $\frac{\pi}{8}rad$

Question Type : **MCQ**
Question ID : **588552768**
Option 1 ID : **5885523072**
Option 2 ID : **5885523071**
Option 3 ID : **5885523070**
Option 4 ID : **5885523069**
Status : **Answered**
Chosen Option : **3**

Q.30 The equation of state for 2g of oxygen at a pressure 'P' and temperature'T', when occupying a volume 'V' will be

Ans
1. PV = 16 RT
2. PV=RT
3. $PV = \frac{1}{16}RT$
4. PV = 2RT

Question Type : **MCQ**
Question ID : **588552757**
Option 1 ID : **5885523027**
Option 2 ID : **5885523026**
Option 3 ID : **5885523025**
Option 4 ID : **5885523028**
Status : **Answered**
Chosen Option : **3**

Q.31 The magnetic dipole moment of a short magnetic dipole at a distant point along the equator of magnet has a magnitude of 'X' in S.I. units. If the distance between the point and the magnet is halved then the magnitude of dipole moment will be

Ans
1. 2 X
2. $\frac{1}{2}$ X
3. X
4. $\frac{1}{8}$ X

Question Type : **MCQ**
Question ID : **588552792**
Option 1 ID : **5885523168**
Option 2 ID : **5885523166**
Option 3 ID : **5885523167**
Option 4 ID : **5885523165**
Status : **Answered**
Chosen Option : **3**

Q.32 The ratio of the dimensions of Planck's constant to that of moment of inertia is the dimensions of

Ans
1. angular momentum.
2. velocity.
3. frequency.
4. time.

Question Type : **MCQ**
Question ID : **588552777**

Option 1 ID : **5885523106**
Option 2 ID : **5885523105**
Option 3 ID : **5885523108**
Option 4 ID : **5885523107**
Status : **Answered**
Chosen Option : **3**

**Q.33** If 'x', 'V' and 'a' denote the displacement, velocity and acceleration of a particle respectively executing S.H.M. of periodic time 'T', then which one of the following does not change with time?

**Ans**

✔ 1. $\frac{aT}{x}$

✘ 2. $at + 2\pi V$

✘ 3. $\frac{aT}{V}$

✘ 4. $aT + 4\pi^2 V^2$

Question Type : **MCQ**
Question ID : **588552759**
Option 1 ID : **5885523034**
Option 2 ID : **5885523035**
Option 3 ID : **5885523036**
Option 4 ID : **5885523033**
Status : **Answered**
Chosen Option : **1**

**Q.34** A particle is performing U.C.M. along the circumference of a circle of diameter 50 cm with frequency 2 Hz. The acceleration of the particle in $m/s^2$ is

**Ans**

✘ 1. $2\pi^2$

✘ 2. $8\pi^2$

✘ 3. $\pi^2$

✔ 4. $4\pi^2$

Question Type : **MCQ**
Question ID : **588552784**
Option 1 ID : **5885523135**
Option 2 ID : **5885523133**
Option 3 ID : **5885523136**
Option 4 ID : **5885523134**

Status : **Answered**
Chosen Option : **4**

**Q.3 5** **Find the wrong statement from the following about the equation of stationary wave given by Y = 0.04 cos (πx) sin (50 πt) m where t is in second. Then for the stationary wave.**

**Ans**

✔ 1. Time period = 0.02 s

✘ 2. Wavelength = 2 m

✘ 3. Velocity = 50 m/s

✘ 4. Amplitude = 0.02 m

Question Type : **MCQ**
Question ID : **588552782**
Option 1 ID : **5885523127**
Option 2 ID : **5885523126**
Option 3 ID : **5885523128**
Option 4 ID : **5885523125**
Status : **Marked For Review**
Chosen Option : **1**

**Q.3 6** **A convex lens of focal length 'f' is placed in contact with a concave lens of the same focal length. The equivalent focal length of the combination is**

**Ans**

✘ 1. f

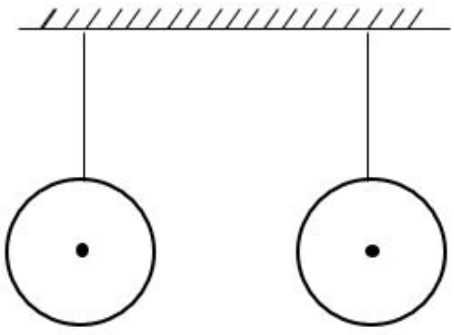
✔ 2. infinity

✘ 3. f/2

✘ 4. zero

Question Type : **MCQ**
Question ID : **588552776**
Option 1 ID : **5885523103**
Option 2 ID : **5885523104**
Option 3 ID : **5885523102**
Option 4 ID : **5885523101**
Status : **Answered**
Chosen Option : **2**

**Q.3 7** **Two light balls are suspended as shown in figure . When a stream of air passes through the space between them, the distance between the balls will**



**Ans**

✘ 1. remain same.

✘ 2. increase.

✘ 3. may increase or decrease, depending on speed of air.

✔ 4. decrease.

Question Type : **MCQ**

Question ID : **588552765**
Option 1 ID : **5885523059**
Option 2 ID : **5885523058**
Option 3 ID : **5885523060**
Option 4 ID : **5885523057**
Status : **Marked For Review**
Chosen Option : **4**

**Q.38** **The range of an ammeter of resistance 'G' can be increased from 'I' to 'nI' by connecting**

**Ans**

✗ 1. a series resistance of $\frac{G}{n-1}\ \Omega$

✓ 2. a shunt of $\frac{G}{n-1}\ \Omega$

✗ 3. a shunt of $\frac{G}{n+1}\ \Omega$

✗ 4. a series resistance of $\frac{G}{n+1}\ \Omega$

Question Type : **MCQ**
Question ID : **588552758**
Option 1 ID : **5885523032**
Option 2 ID : **5885523031**
Option 3 ID : **5885523029**
Option 4 ID : **5885523030**
Status : **Answered**
Chosen Option : **2**

**Q.39** **The critical angle for light going from medium '$x$' to medium 'y' is 'θ'. The speed of light in medium '$x$' is '$V_x$'. The speed of light in medium 'y' is**

**Ans**

✗ 1. $V_x / \tan\theta$

✗ 2. $V_x \sin\theta$

✗ 3. $V_x \tan\theta$

✓ 4. $V_x / \sin\theta$

Question Type : **MCQ**
Question ID : **588552752**
Option 1 ID : **5885523008**
Option 2 ID : **5885523006**
Option 3 ID : **5885523007**
Option 4 ID : **5885523005**
Status : **Answered**
Chosen Option : **4**

Q.40 When a 12000 joule of work is done on a flywheel, its frequency of rotation inceases from 10 Hz to 20 Hz. The moment of inertia of flywheel about its axis of rotation is ($\pi^2$ =10)

Ans
✗ 1. 1 $kgm^2$
✓ 2. 2 $kgm^2$
✗ 3. 1.688 $kgm^2$
✗ 4. 1.5 $kgm^2$

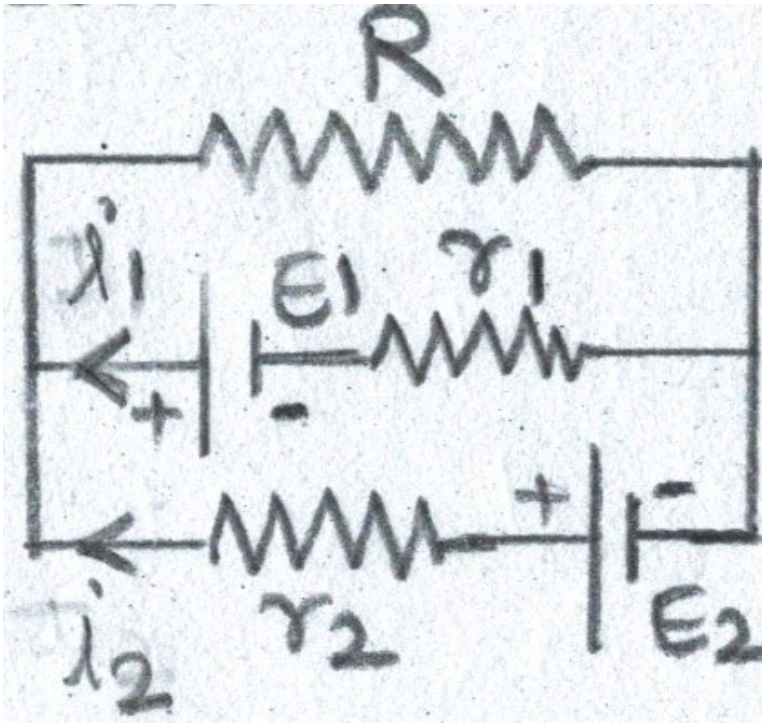
Question Type : **MCQ**
Question ID : **588552779**
Option 1 ID : **5885523115**
Option 2 ID : **5885523114**
Option 3 ID : **5885523113**
Option 4 ID : **5885523116**
Status : **Answered**
Chosen Option : **2**

Q.41 A rigid body is rotating with angular velocity 'ω' about an axis of rotation. Let 'v' be the linear velocity of particle which is at perpendicular distance 'r' from the axis of rotation. Then the relation 'v = rω' implies that

Ans
✓ 1. ω does not depend on r
✗ 2. $\omega \propto \frac{1}{r}$
✗ 3. ω ∝ r
✗ 4. ω = 0

Question Type : **MCQ**
Question ID : **588552754**
Option 1 ID : **5885523013**
Option 2 ID : **5885523015**
Option 3 ID : **5885523014**
Option 4 ID : **5885523016**
Status : **Answered**
Chosen Option : **1**

Q.42 In the given electrical circuit, which one of the following equations is a correct equation ?




Ans

✗ 1. $E_2 - i_2 r_2 - E_1 - i_1 r_1 = 0$

✗ 2. $E_1 - (i_1 + i_2)R + i_1 r_1 = 0$

✓ 3. $E_1 - (i_1 + i_2)\, R - i_1 r_1 = 0$

✗ 4. $-E_2 - (i_1 + i_2)R + i_2 r_2 = 0$

Question Type : **MCQ**
Question ID : **588552775**
Option 1 ID : **5885523099**
Option 2 ID : **5885523097**
Option 3 ID : **5885523100**
Option 4 ID : **5885523098**
Status : **Answered**
Chosen Option : **3**

**Q.43** The maximum wavelength of radiation emitted by a star is 289.8 nm. Then intensity of radiation for the star is (Given : Stefan's constant = $5.67\times10^{-8}$ $Wm^{-2}K^{-4}$, Wien's constant, b = 2898 μ mK)

Ans

✗ 1. $5.67\times10^{-12}$ $Wm^{-2}$

✗ 2. $10.67\times10^{14}$ $Wm^{-2}$

✓ 3. $5.67\times10^{8}$ $Wm^{-2}$

✗ 4. $10.67\times10^{7}$ $Wm^{-2}$

Question Type : **MCQ**
Question ID : **588552772**

Option 1 ID : **5885523085**
Option 2 ID : **5885523088**
Option 3 ID : **5885523087**
Option 4 ID : **5885523086**
Status : **Answered**
Chosen Option : **3**

**Q.44** **A lift is tied with thick iron ropes having mass 'M'. The maximum acceleration of the lift is 'a' $m/s^2$ and maximum safe stress is 'S' $N/m^2$. The minimum diameter of the rope is**

**Ans**

✗ 1. $[6\,M(g+a)/\pi\,S]^{1/2}$

✓ 2. $[4\,M(g+a)/\pi\,S]^{1/2}$

✗ 3. $[M(g+a)/\pi\,S]^{1/2}$

✗ 4. $[M(g-a)/\pi\,S]^{1/2}$

Question Type : **MCQ**
Question ID : **588552794**
Option 1 ID : **5885523176**
Option 2 ID : **5885523175**
Option 3 ID : **5885523174**
Option 4 ID : **5885523173**
Status : **Answered**
Chosen Option : **2**

**Q.45** In Balmer series, wavelength of first line is '$\lambda_1$' and in Brackett series wavelength of first line is '$\lambda_2$' then $\lambda_1/\lambda_2$ is

**Ans**

✓ 1. 0.162

✗ 2. 0.124

✗ 3. 0.138

✗ 4. 0.188

Question Type : **MCQ**
Question ID : **588552771**
Option 1 ID : **5885523083**
Option 2 ID : **5885523081**
Option 3 ID : **5885523082**
Option 4 ID : **5885523084**
Status : **Answered**
Chosen Option : **1**

**Q.46** An alternating voltage is given by E = 100 sin (wt + π/6) V. The voltage will be maximum for the first time when t = [ T = periodic time ]

**Ans**

✗ 1. $\frac{T}{12}$

2. $\frac{T}{2}$

3. $\frac{T}{6}$

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

Question Type : **MCQ**
Question ID : **588552763**
Option 1 ID : **5885523052**
Option 2 ID : **5885523050**
Option 3 ID : **5885523051**
Option 4 ID : **5885523049**
Status : **Answered**
Chosen Option : **3**

**Q.47** **In frequency modulated wave**

**Ans**
1. frequency varies with time.
2. both frequency and amplutude vary with time.
3. amplitude varies with time.
4. both frequency and amplitude are constant.

Question Type : **MCQ**
Question ID : **588552753**
Option 1 ID : **5885523010**
Option 2 ID : **5885523012**
Option 3 ID : **5885523009**
Option 4 ID : **5885523011**
Status : **Marked For Review**
Chosen Option : **1**

**Q.48** **With a resistance of 'X' in the left gap and a resistance of 9 Ω in the right gap of a meter bridge, the balance point is obtained at 40 cm from the left end. In what way and to which resistance 3 Ω resistance be connected to obtain the balance at 50 cm from the left end ?**

**Ans**
1. in series with 9 Ω
2. parallel to X Ω
3. in series with X Ω
4. parallel to 9 Ω

Question Type : **MCQ**
Question ID : **588552798**
Option 1 ID : **5885523192**
Option 2 ID : **5885523189**
Option 3 ID : **5885523191**
Option 4 ID : **5885523190**

Status : **Answered**
Chosen Option : **3**

**Q.49** **The excess of pressure, due to surface tension, on a spherical liquid drop of radius 'R' is proportional to**

**Ans**

✔ 1. $R^{-1}$

✘ 2. R

✘ 3. $R^{-2}$

✘ 4. $R^{2}$

Question Type : **MCQ**
Question ID : **588552761**
Option 1 ID : **5885523044**
Option 2 ID : **5885523041**
Option 3 ID : **5885523043**
Option 4 ID : **5885523042**
Status : **Answered**
Chosen Option : **1**

**Q.50** $\vec{P}$ and $\vec{Q}$ are two non-zero vectors inclined to each other at an angle $'\theta'$. $'\hat{P}'$ and $'\hat{q}'$ are unit vectors along $\vec{P}$ and $\vec{Q}$ respectively. The component of $\vec{Q}$ in the direction of $\vec{P}$ will be

**Ans**

✔ 1. $\hat{P}.\vec{Q}$

✘ 2. $\frac{\vec{P}\times\vec{Q}}{P}$

✘ 3. $\frac{\vec{P}.\vec{Q}}{Q}$

✘ 4. $\vec{P}.\hat{q}$

Question Type : **MCQ**
Question ID : **588552787**
Option 1 ID : **5885523147**
Option 2 ID : **5885523146**
Option 3 ID : **5885523145**
Option 4 ID : **5885523148**
Status : **Answered**
Chosen Option : **1**

Section : **Chemistry**

**Q.1 The number of σ and π bonds in 2-formylbenzoic acid are respectively**

**Ans**

✗ 1. 10,3

✗ 2. 14,3

✗ 3. 12,5

✓ 4. 17,5

Question Type : **MCQ**
Question ID : **588552804**
Option 1 ID : **5885523216**
Option 2 ID : **5885523214**
Option 3 ID : **5885523215**
Option 4 ID : **5885523213**
Status : **Answered**
Chosen Option : **4**

**Q.2 The volume of 1 mole of any pure gas at standard temperature and pressure is always equal to**

**Ans**

✓ 1. 0.022414 $m^3$

✗ 2. 22.414 $m^3$

✗ 3. 2.2414 $m^3$

✗ 4. 0.22414 $m^3$

Question Type : **MCQ**
Question ID : **588552831**
Option 1 ID : **5885523323**
Option 2 ID : **5885523324**
Option 3 ID : **5885523322**
Option 4 ID : **5885523321**
Status : **Answered**
Chosen Option : **1**

**Q.3 Veronal is used as a/an**

**Ans**

✗ 1. analgesic

✗ 2. antihistamine

✗ 3. antibiotic

✓ 4. tranquilizer

Question Type : **MCQ**
Question ID : **588552839**
Option 1 ID : **5885523353**
Option 2 ID : **5885523356**
Option 3 ID : **5885523354**
Option 4 ID : **5885523355**
Status : **Answered**
Chosen Option : **4**

**Q.4 Which of the following is also called as nitrogen sesquioxide ?**

**Ans**

✗ 1. $NO_2$

✓ 2. $N_2O_3$

✗ 3. $N_2O_4$

✗ 4. $N_2O_5$

Question Type : **MCQ**
Question ID : **588552818**
Option 1 ID : **5885523270**
Option 2 ID : **5885523269**
Option 3 ID : **5885523271**
Option 4 ID : **5885523272**
Status : **Marked For Review**
Chosen Option : **2**

**Q.5 The oxidation number of sulphur in $S_8$ molecule is**

**Ans**
✗ 1. 6
✓ 2. 0
✗ 3. 2
✗ 4. 3

Question Type : **MCQ**
Question ID : **588552827**
Option 1 ID : **5885523308**
Option 2 ID : **5885523305**
Option 3 ID : **5885523306**
Option 4 ID : **5885523307**
Status : **Answered**
Chosen Option : **2**

**Q.6 Which among the following is a set of nucleophiles ?**

**Ans**
✗ 1. $H^+$ , $NH_3$ , $Cl^-$
✗ 2. $BF_3$ , $H_2O$ , $NH_3$
✗ 3. $AlCl_3$ , $BF_3$ ,$NH_3$
✓ 4. $CN^-$ , $H_2O$ , R-OH

Question Type : **MCQ**
Question ID : **588552833**
Option 1 ID : **5885523332**
Option 2 ID : **5885523329**
Option 3 ID : **5885523330**
Option 4 ID : **5885523331**
Status : **Answered**
Chosen Option : **4**

**Q.7 Which of the following acts as oxidising agent in hydrogen - oxygen fuel cell ?**

**Ans**
✗ 1. $H_2$
✓ 2. $O_2$
✗ 3. KOH
✗ 4. C

Question Type : **MCQ**
Question ID : **588552810**
Option 1 ID : **5885523238**
Option 2 ID : **5885523237**
Option 3 ID : **5885523240**

Option 4 ID : **5885523239**
Status : **Answered**
Chosen Option : **2**

**Q.8 In ozone molecule , the formal charge on the central oxygen atom is**

**Ans**
✗ 1. -1
✗ 2. +2
✗ 3. 0
✓ 4. +1

Question Type : **MCQ**
Question ID : **588552837**
Option 1 ID : **5885523345**
Option 2 ID : **5885523348**
Option 3 ID : **5885523346**
Option 4 ID : **5885523347**
Status : **Answered**
Chosen Option : **4**

**Q.9 According to Werners theory , the geometry of the complex is determined by**

**Ans**
✗ 1. only from the primary valence in space
✗ 2. number and position of the primary valences in space
✓ 3. number and position of the secondary valences in space
✗ 4. only from the position of secondary valence in space

Question Type : **MCQ**
Question ID : **588552815**
Option 1 ID : **5885523259**
Option 2 ID : **5885523258**
Option 3 ID : **5885523257**
Option 4 ID : **5885523260**
Status : **Answered**
Chosen Option : **3**

**Q.10 How many total constituent particles are present in simple cubic unit cell ?**

**Ans**
✓ 1. 1
✗ 2. 3
✗ 3. 4
✗ 4. 2

Question Type : **MCQ**
Question ID : **588552847**
Option 1 ID : **5885523385**
Option 2 ID : **5885523387**
Option 3 ID : **5885523388**
Option 4 ID : **5885523386**
Status : **Answered**
Chosen Option : **1**

**Q.11 The correct representation of Nernst's equation for half-cell reaction $Cu^{2+}_{(aq)} + e^- \rightarrow Cu^{+}_{(aq)}$ is**

**Ans**

1. $E^0_{Cu^+, Cu^{2+}} = E_{Cu^+, Cu^{2+}} - \frac{0.0592}{2} \text{Log} \frac{[Cu^+]}{[Cu^{2+}]}$

2. $E_{Cu^+, Cu^{2+}} = E^0_{Cu^+, Cu^{2+}} - \frac{0.0592}{1} \text{Log} \frac{[Cu^+]}{[Cu^{2+}]}$

3. $E^0_{Cu^+, Cu^{2+}} = E_{Cu^+, Cu^{2+}} + \frac{0.0592}{2} \text{Log} \frac{[Cu^+]}{[Cu^{2+}]}$

4. $E_{Cu^+, Cu^{2+}} = E^0_{Cu^+, Cu^{2+}} - \frac{0.0592}{1} \text{Log} \frac{[Cu^+]}{[Cu^{2+}]}$

**Note: For this question, discrepancy is found in question/answer. Full Marks is being awarded to all candidates.**

Question Type : **MCQ**
Question ID : **588552807**
Option 1 ID : **5885523225**
Option 2 ID : **5885523228**
Option 3 ID : **5885523226**
Option 4 ID : **5885523227**
Status : **Answered**
Chosen Option : **4**

**Q.12** Which among the following is a neutral complex ?

**Ans**
✗ 1. $[Fe(H_2O)_6]Cl_3$
✗ 2. $[Ni(NH_3)_6]Cl_2$
✓ 3. $[Pt(NH_3)_2Cl_2]$
✗ 4. $K[Ag(CN)_2]$

Question Type : **MCQ**
Question ID : **588552823**
Option 1 ID : **5885523292**
Option 2 ID : **5885523291**
Option 3 ID : **5885523289**
Option 4 ID : **5885523290**
Status : **Answered**
Chosen Option : **3**

**Q.13** Identify the equation in which change in enthalpy is equal to change in internal energy

**Ans**
✗ 1. $2H_2O_{2(l)} \rightarrow 2H_2O_{(l)} + O_{2(g)}$
✓ 2. $C_{(s)} + O_{2(g)} \rightarrow CO_{2(g)}$
✗ 3. $PCl_{5(g)} \rightarrow PCl_{3(g)} + Cl_{2(g)}$
✗ 4. $N_{2(g)} + 3H_{2(g)} \rightarrow 2NH_{3(g)}$

Question Type : **MCQ**
Question ID : **588552836**
Option 1 ID : **5885523342**
Option 2 ID : **5885523341**
Option 3 ID : **5885523343**
Option 4 ID : **5885523344**
Status : **Answered**
Chosen Option : **2**

**Q.14** **Limestone is used as a flux in the extraction of**

**Ans**
✔ 1. iron
✘ 2. aluminium
✘ 3. zinc
✘ 4. copper

Question Type : **MCQ**
Question ID : **588552816**
Option 1 ID : **5885523263**
Option 2 ID : **5885523262**
Option 3 ID : **5885523264**
Option 4 ID : **5885523261**
Status : **Marked For Review**
Chosen Option : **1**

**Q.15** **Which among the following does not form polyhalide ion ?**

**Ans**
✘ 1. Chlorine
✘ 2. Bromine
✘ 3. Iodine
✔ 4. Fluorine

Question Type : **MCQ**
Question ID : **588552811**
Option 1 ID : **5885523241**
Option 2 ID : **5885523243**
Option 3 ID : **5885523244**
Option 4 ID : **5885523242**
Status : **Answered**
Chosen Option : **4**

**Q.16** **How many isomers are possible for an alkane having molecular formula $C_5H_{12}$?**

**Ans**
✘ 1. 5
✔ 2. 3
✘ 3. 4
✘ 4. 2

Question Type : **MCQ**
Question ID : **588552801**
Option 1 ID : **5885523204**
Option 2 ID : **5885523202**
Option 3 ID : **5885523203**

Option 4 ID : **5885523201**
Status : **Marked For Review**
Chosen Option : **2**

**Q.1 7** **Which of following elements does not form amide when reacted with ammonia ?**

**Ans**
✔ 1. Li
✘ 2. Na
✘ 3. K
✘ 4. Rb

Question Type : **MCQ**
Question ID : **588552845**
Option 1 ID : **5885523380**
Option 2 ID : **5885523379**
Option 3 ID : **5885523378**
Option 4 ID : **5885523377**
Status : **Marked For Review**
Chosen Option : **1**

**Q.1 8** **Two moles of an ideal gas is expanded isothermally and reversibly at 300 K from 1L to 10 L . The enthalpy change in kJ is**

**Ans**
✘ 1. 11.4 kJ
✘ 2. 4.8 kJ
✘ 3. -11.4 kJ
✔ 4. Zero kJ

Question Type : **MCQ**
Question ID : **588552832**
Option 1 ID : **5885523327**
Option 2 ID : **5885523326**
Option 3 ID : **5885523328**
Option 4 ID : **5885523325**
Status : **Answered**
Chosen Option : **4**

**Q.1 9** **α-Chlorosodium acetate on boiling with aqueous sodium nitrite gives**

**Ans**
✔ 1. nitromethane
✘ 2. α-chloronitromethane
✘ 3. nitroethane
✘ 4. acetyl chloride

Question Type : **MCQ**
Question ID : **588552829**
Option 1 ID : **5885523313**
Option 2 ID : **5885523316**
Option 3 ID : **5885523314**
Option 4 ID : **5885523315**
Status : **Answered**
Chosen Option : **1**

**Q.2 0** **The bond angle H-O-O in $H_2O_2$ in gaseous phase is**

Ans
✗ 1. $90.2^0$
✗ 2. $111.5^0$
✗ 3. $101.9^0$
✓ 4. $94.8^0$

Question Type : **MCQ**
Question ID : **588552834**
Option 1 ID : **5885523335**
Option 2 ID : **5885523334**
Option 3 ID : **5885523333**
Option 4 ID : **5885523336**
Status : **Answered**
Chosen Option : **3**

**Q.21** **How many metameric ethers are represented by the molecular formula $C_4H_{10}O$ ?**

Ans
✗ 1. 4
✓ 2. 3
✗ 3. 2
✗ 4. 5

Question Type : **MCQ**
Question ID : **588552814**
Option 1 ID : **5885523255**
Option 2 ID : **5885523254**
Option 3 ID : **5885523253**
Option 4 ID : **5885523256**
Status : **Answered**
Chosen Option : **2**

**Q.22** **The activation energy of a reaction is zero. Its rate constant at 280 K is $1.6 \times 10^{-6}\ S^{-1}$, the rate constant at 300 K is**

Ans
✗ 1. $3.2 \times 10^{-6}\ S^{-1}$
✗ 2. Zero
✓ 3. $1.6 \times 10^{-6}\ S^{-1}$
✗ 4. $1.6 \times 10^{-5}\ S^{-1}$

Question Type : **MCQ**
Question ID : **588552802**
Option 1 ID : **5885523208**
Option 2 ID : **5885523205**
Option 3 ID : **5885523206**
Option 4 ID : **5885523207**
Status : **Answered**
Chosen Option : **3**

**Q.23** **Which of following metals occurs in native state ?**

Ans
✗ 1. Magnesium
✓ 2. Platinum
✗ 3. Potassium

✗ 4. Sodium

Question Type : **MCQ**
Question ID : **588552819**
Option 1 ID : **5885523276**
Option 2 ID : **5885523275**
Option 3 ID : **5885523274**
Option 4 ID : **5885523273**
Status : **Answered**
Chosen Option : **2**

**Q.24** Which of the following is NOT a broadspectrum anitibiotics ?

**Ans**
✓ 1. Penicillin
✗ 2. Amoxicillin
✗ 3. Chloramphenicol
✗ 4. Ampicillin

Question Type : **MCQ**
Question ID : **588552838**
Option 1 ID : **5885523350**
Option 2 ID : **5885523349**
Option 3 ID : **5885523351**
Option 4 ID : **5885523352**
Status : **Answered**
Chosen Option : **1**

**Q.25** The oxidation state of sulphur in $H_2S_2O_7$ is

**Ans**
✗ 1. +4
✓ 2. +6
✗ 3. +5
✗ 4. +7

Question Type : **MCQ**
Question ID : **588552826**
Option 1 ID : **5885523301**
Option 2 ID : **5885523303**
Option 3 ID : **5885523302**
Option 4 ID : **5885523304**
Status : **Answered**
Chosen Option : **2**

**Q.26** The reaction in which 2 molecules of chlorobenzene reacts with metallic sodium in presence of dry ether forming diphenyl is an example of,

**Ans**
✓ 1. Wurtz -Fittig reaction
✗ 2. Wurtz reaction
✗ 3. Rosenmund reaction
✗ 4. Balz-Schiemann reaction

Question Type : **MCQ**
Question ID : **588552821**
Option 1 ID : **5885523284**

Option 2 ID : **5885523283**
Option 3 ID : **5885523282**
Option 4 ID : **5885523281**
Status : **Answered**
Chosen Option : **1**

**Q.27** The percentage of unoccupied volume in simple cubic cell is

Ans
✗ 1. 52.40 %
✗ 2. 32.00 %
✓ 3. 47.60 %
✗ 4. 68.04 %

Question Type : **MCQ**
Question ID : **588552843**
Option 1 ID : **5885523369**
Option 2 ID : **5885523372**
Option 3 ID : **5885523370**
Option 4 ID : **5885523371**
Status : **Answered**
Chosen Option : **3**

**Q.28** Isobutylene on hydroboration followed by oxidation with hydrogen peroxide in presence of base yields

Ans
✗ 1. n-butyl alcohol
✗ 2. sec-butyl alcohol
✗ 3. tert-butyl alcohol
✓ 4. isobutyl alcohol

Question Type : **MCQ**
Question ID : **588552817**
Option 1 ID : **5885523265**
Option 2 ID : **5885523267**
Option 3 ID : **5885523268**
Option 4 ID : **5885523266**
Status : **Answered**
Chosen Option : **4**

**Q.29** What is the density of water vapour at boiling point of water ?

Ans
✗ 1. $1 \times 10^{-4}$ g $cm^{-3}$
✗ 2. 1 g $cm^{-3}$
✓ 3. $6 \times 10^{-4}$ g $cm^{-3}$
✗ 4. $4 \times 10^{-4}$ g $cm^{-3}$

Question Type : **MCQ**
Question ID : **588552835**
Option 1 ID : **5885523338**
Option 2 ID : **5885523337**
Option 3 ID : **5885523339**
Option 4 ID : **5885523340**
Status : **Answered**
Chosen Option : **3**

Q.30 Which of the following molecules form a zwitter ion ?

Ans
1. $CH_3COOCH_3$
2. $H_2NCH_2COOH$
3. $CH_3COC_2H_5$
4. $CH_3CH_2COOH$

Question Type : **MCQ**
Question ID : **588552842**
Option 1 ID : **5885523365**
Option 2 ID : **5885523367**
Option 3 ID : **5885523366**
Option 4 ID : **5885523368**
Status : **Answered**
Chosen Option : **2**

Q.31 Which reaction is useful in exchange of halogen in alkyl chloride by iodide ?

Ans
1. Wurtz reaction
2. Finkelstein reaction
3. Reimer-Tiemann reaction
4. Williamson synthesis

Question Type : **MCQ**
Question ID : **588552812**
Option 1 ID : **5885523245**
Option 2 ID : **5885523248**
Option 3 ID : **5885523246**
Option 4 ID : **5885523247**
Status : **Answered**
Chosen Option : **2**

Q.32 Propene when treated with cold conc. $H_2SO_4$ forms a compound which on heating with water gives

Ans
1. propan-2-ol
2. butan-1-ol
3. ethanol
4. propan-1-ol

Question Type : **MCQ**
Question ID : **588552813**
Option 1 ID : **5885523251**
Option 2 ID : **5885523252**
Option 3 ID : **5885523249**
Option 4 ID : **5885523250**
Status : **Answered**
Chosen Option : **1**

Q.33 Identify the amine formed when ethyltrimethyl ammonium iodide is treated with silver hydroxide and further heated strongly

Ans
1. $C_2H_5N(CH_3)_2$
2. $C_2H_5NH_2$

✔ 3. $(CH_3)_3N$

✘ 4. $CH_3NH_2$

Question Type : **MCQ**
Question ID : **588552803**
Option 1 ID : **5885523211**
Option 2 ID : **5885523209**
Option 3 ID : **5885523212**
Option 4 ID : **5885523210**
Status : **Answered**
Chosen Option : **3**

**Q.34** **For a chemical reaction rate law is, rate =k $[A]^2$ [B]. If [A] is doubled at constant [B], the rate of reaction**

**Ans**

✘ 1. increases by a factor of 8

✔ 2. increases by a factor of 4

✘ 3. increases by a factor of 3

✘ 4. increases by a factor of 2

Question Type : **MCQ**
Question ID : **588552809**
Option 1 ID : **5885523236**
Option 2 ID : **5885523235**
Option 3 ID : **5885523234**
Option 4 ID : **5885523233**
Status : **Answered**
Chosen Option : **2**

**Q.35** **Which of the following is a natural polymer ?**

**Ans**

✘ 1. Nylon

✘ 2. Teflon

✔ 3. Linen

✘ 4. Orlon

Question Type : **MCQ**
Question ID : **588552849**
Option 1 ID : **5885523393**
Option 2 ID : **5885523395**
Option 3 ID : **5885523396**
Option 4 ID : **5885523394**
Status : **Answered**
Chosen Option : **3**

**Q.36** **The monomers used in the preparation of dextron are**

**Ans**

✘ 1. glycine and ω- amino caproic acid

✘ 2. 3- Hydroxybutanoic acid and 3-hydroxy pentanoic acid

✘ 3. glycine and lactic acid

✔ 4. lactic acid and glycollic acid

Question Type : **MCQ**
Question ID : **588552848**

Option 1 ID : **5885523392**
Option 2 ID : **5885523389**
Option 3 ID : **5885523390**
Option 4 ID : **5885523391**
Status : **Answered**
Chosen Option : **4**

**Q.37** When a mixture of manganese dioxide, potassium hydroxide and potassium chlorate is fused , the product obtained is

**Ans**

✗ 1. $K_2SO_4$

✗ 2. $K_2MnO_3$

✓ 3. $K_2MnO_4$

✗ 4. $KMnO_4$

Question Type : **MCQ**
Question ID : **588552822**
Option 1 ID : **5885523285**
Option 2 ID : **5885523286**
Option 3 ID : **5885523287**
Option 4 ID : **5885523288**
Status : **Answered**
Chosen Option : **3**

**Q.38** In which oxidation state, group 15 elements act as Lewis base ?

**Ans**

✗ 1. +5

✗ 2. +4

✓ 3. -3

✗ 4. +3

Question Type : **MCQ**
Question ID : **588552805**
Option 1 ID : **5885523220**
Option 2 ID : **5885523219**
Option 3 ID : **5885523218**
Option 4 ID : **5885523217**
Status : **Answered**
Chosen Option : **3**

**Q.39** Relationship between vant Hoff factor (i) and degree of dissociation (α) is

**Ans**

✗ 1. $i = \frac{\alpha - 1}{n' - 1}$

✗ 2. $i = -\frac{\alpha - 1}{1 - n'}$

✗ 3. $\alpha = \frac{1 - i}{n' - 1}$

✔ 4. $\alpha = \frac{i - 1}{n' - 1}$

Question Type : **MCQ**
Question ID : **588552841**
Option 1 ID : **5885523363**
Option 2 ID : **5885523361**
Option 3 ID : **5885523362**
Option 4 ID : **5885523364**
Status : **Answered**
Chosen Option : **4**

**Q.40** **Which of following elements does NOT react with hot concentrated sulphuric acid ?**

**Ans**
✘ 1. Sb
✔ 2. N
✘ 3. P
✘ 4. As

Question Type : **MCQ**
Question ID : **588552825**
Option 1 ID : **5885523299**
Option 2 ID : **5885523300**
Option 3 ID : **5885523297**
Option 4 ID : **5885523298**
Status : **Answered**
Chosen Option : **1**

**Q.41**

In the reaction, $H_2O_{2(aq)} \xrightarrow{I^-_{(aq)}} H_2O_{(l)} + \frac{1}{2}O_{2(g)}$ iodide ion acts as

**Ans**
✔ 1. homogenous catalyst
✘ 2. acid catalyst
✘ 3. Heterogenous catalyst
✘ 4. enzyme catalyst

Question Type : **MCQ**
Question ID : **588552830**
Option 1 ID : **5885523318**
Option 2 ID : **5885523320**
Option 3 ID : **5885523317**
Option 4 ID : **5885523319**
Status : **Answered**
Chosen Option : **3**

**Q.42** **The ionic charges of manganate and permanganate ion are respectively**

Ans
1. -2, -2
2. -1, -2
3. -2, -1
4. -1, -1

Question Type : **MCQ**
Question ID : **588552850**
Option 1 ID : **5885523397**
Option 2 ID : **5885523398**
Option 3 ID : **5885523399**
Option 4 ID : **5885523400**
Status : **Answered**
Chosen Option : **3**

**Q.43** How many gram of sodium (atomic mass 23 u) is required to prepare one mole of ethane from methyl chloride by wurtz reaction ?

Ans
1. 2
2. 23
3. 11.5
4. 46

Question Type : **MCQ**
Question ID : **588552828**
Option 1 ID : **5885523312**
Option 2 ID : **5885523309**
Option 3 ID : **5885523310**
Option 4 ID : **5885523311**
Status : **Answered**
Chosen Option : **4**

**Q.44** The enzyme which converts maltose to glucose is

Ans
1. maltase
2. insulin
3. lysine
4. zymase

Question Type : **MCQ**
Question ID : **588552844**
Option 1 ID : **5885523373**
Option 2 ID : **5885523374**
Option 3 ID : **5885523376**
Option 4 ID : **5885523375**
Status : **Answered**
Chosen Option : **1**

**Q.45** If $C_{(s)}+O_{2(g)} \rightarrow CO_{2(g)}$ $\Delta H=-X$, $CO_{(g)}+\frac{1}{2}O_{2(g)} \rightarrow CO_{2(g)}$ $\Delta H=-Y$, Calculate $\Delta_f H$ for $CO_{(g)}$ formation

Ans
1. -Y-X
2. Y-X

✗ 3. X+Y

✗ 4. X-Y

Question Type : **MCQ**
Question ID : **588552820**
Option 1 ID : **5885523280**
Option 2 ID : **5885523278**
Option 3 ID : **5885523279**
Option 4 ID : **5885523277**
Status : **Answered**
Chosen Option : **2**

**Q.46** What is the atomicity of aluminium phosphate ?

**Ans**

✗ 1. 8

✓ 2. 6

✗ 3. 5

✗ 4. 13

Question Type : **MCQ**
Question ID : **588552824**
Option 1 ID : **5885523293**
Option 2 ID : **5885523295**
Option 3 ID : **5885523294**
Option 4 ID : **5885523296**
Status : **Answered**
Chosen Option : **2**

**Q.47** Which among the following compounds is obtained when ethanenitrile is acid hydrolysed?

**Ans**

✗ 1. Formic acid

✗ 2. Acetamide

✗ 3. Formamide

✓ 4. Acetic acid

Question Type : **MCQ**
Question ID : **588552806**
Option 1 ID : **5885523221**
Option 2 ID : **5885523224**
Option 3 ID : **5885523222**
Option 4 ID : **5885523223**
Status : **Answered**
Chosen Option : **4**

**Q.48** Standard Hydrogen electrode (SHE) is a

**Ans**

✓ 1. Primary reference electrode

✗ 2. Secondary reference electrode

✗ 3. Metal - Sparingly soluble salt eletrode

✗ 4. Metal - Metal ion eletrode

Question Type : **MCQ**
Question ID : **588552808**

Option 1 ID : **5885523230**
Option 2 ID : **5885523229**
Option 3 ID : **5885523231**
Option 4 ID : **5885523232**
Status : **Answered**
Chosen Option : **1**

**Q.49** **9 gram anhydrous oxalic acid (Mol. Wt = 90) was dissolved in 9.9 moles of water. If vapour pressure of pure water is $P_1^0$, the vapour pressure of solution is**

**Ans**
✔ 1. 0.99 $P_1^0$
✗ 2. 0.1 $P_1^0$
✗ 3. 0.90 $P_1^0$
✗ 4. 1.1 $P_1^0$

Question Type : **MCQ**
Question ID : **588552840**
Option 1 ID : **5885523357**
Option 2 ID : **5885523359**
Option 3 ID : **5885523358**
Option 4 ID : **5885523360**
Status : **Answered**
Chosen Option : **1**

**Q.50** **Which of the following sets of solutions of urea (mol. mass. 60 g $mol^{-1}$) and sucrose (mol. mass. 342 g $mol^{-1}$) is isotonic ?**

**Ans**
✗ 1. 9.1 $gL^{-1}$ urea and 6.0 $gL^{-1}$ sucrose
✗ 2. 3.0 $gL^{-1}$ urea and 3.0 $gL^{-1}$ sucrose
✗ 3. 6.0 $gL^{-1}$ urea and 9.0 $gL^{-1}$ sucrose
✔ 4. 3.0 $gL^{-1}$ urea and 17.1 $gL^{-1}$ sucrose

Question Type : **MCQ**
Question ID : **588552846**
Option 1 ID : **5885523384**
Option 2 ID : **5885523381**
Option 3 ID : **5885523382**
Option 4 ID : **5885523383**
Status : **Answered**
Chosen Option : **4**

Section : **Mathematics**

**Q.1** **In a bionomial distribution, mean is 18 and variance is 12 then p = .....**

**Ans**
✗ 1. $\frac{2}{3}$

✔ 2. $\frac{1}{3}$

✘ 3. $\frac{3}{4}$

✘ 4. $\frac{1}{2}$

Question Type : **MCQ**
Question ID : **588552864**
Option 1 ID : **5885523454**
Option 2 ID : **5885523453**
Option 3 ID : **5885523456**
Option 4 ID : **5885523455**
Status : **Answered**
Chosen Option : **2**

**Q.2** If lines $\frac{x-1}{2} = \frac{y+1}{3} = \frac{z-1}{4}$ and $\frac{x-3}{1} = \frac{y-\lambda}{2} = \frac{z}{1}$ intersect each other, then $\lambda =$ .....

**Ans**

✘ 1. $\frac{7}{2}$

✘ 2. $\frac{3}{2}$

✔ 3. $\frac{9}{2}$

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

Question Type : **MCQ**
Question ID : **588552882**
Option 1 ID : **5885523528**
Option 2 ID : **5885523526**
Option 3 ID : **5885523527**
Option 4 ID : **5885523525**
Status : **Answered**
Chosen Option : **3**

**Q.3** The particular solution of the differential equation $\log(\frac{dy}{dx}) = x$, when $x = 0, y = 1$ is .....

**Ans**

1. $y = e^x + 2$
2. $y = -e^x$
3. $y = -e^x + 2$
4. $y = e^x$

Question Type : **MCQ**
Question ID : **588552865**
Option 1 ID : **5885523458**
Option 2 ID : **5885523457**
Option 3 ID : **5885523459**
Option 4 ID : **5885523460**
Status : **Answered**
Chosen Option : **4**

**Q.4** The p.d.f of a random variable x is given by $f(x) = \frac{1}{4a}$ , $0 < x < 4a$ , $(a > 0)$

$= 0$ , otherwise.

and $P\left(x < \frac{3a}{2}\right) = k\,P\left(x > \frac{5a}{2}\right)$ then k = .....

**Ans**

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

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

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

Question Type : **MCQ**
Question ID : **588552877**
Option 1 ID : **5885523505**
Option 2 ID : **5885523507**
Option 3 ID : **5885523508**
Option 4 ID : **5885523506**
Status : **Answered**
Chosen Option : **1**

**Q.5**

If the function $f(x) = \frac{(e^{kx}-1)tankx}{4x^2}$ , $x \neq 0$

$= 16$ , $x = 0$

Is continuous at $x = 0$ , then $k =$ .....

**Ans**

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

2. $\pm 4$

3. $\pm 2$

4. $\pm 8$

Question Type : **MCQ**
Question ID : **588552893**
Option 1 ID : **5885523572**
Option 2 ID : **5885523569**
Option 3 ID : **5885523570**
Option 4 ID : **5885523571**
Status : **Answered**

Chosen Option : **4**

**Q.6** The solution of the differential equation $ydx - xdy = xydx$ is ……

**Ans**

✗ 1. $x^2 = e^x y^2$

✓ 2. $x = ye^x$

✗ 3. $xy = e^x$

✗ 4. $x^2y^2 = logx$

Question Type : **MCQ**
Question ID : **588552890**
Option 1 ID : **5885523559**
Option 2 ID : **5885523560**
Option 3 ID : **5885523557**
Option 4 ID : **5885523558**
Status : **Answered**
Chosen Option : **2**

**Q.7 The maximum value of z = 6x + 8y subject to x - y ≥ 0 , x + 3y ≤ 12 , x ≥ 0 , y ≥ 0 is …….**

**Ans**

✓ 1. 72

✗ 2. 42

✗ 3. 96

✗ 4. 24

Question Type : **MCQ**
Question ID : **588552881**
Option 1 ID : **5885523524**
Option 2 ID : **5885523523**
Option 3 ID : **5885523522**
Option 4 ID : **5885523521**
Status : **Answered**
Chosen Option : **1**

**Q.8**

If $\sum_{r=1}^{n}(2r+1) = 440$, then $n$ =……

**Ans**

✓ 1. 20

✗ 2. 22

✗ 3. 21

✗ 4. 19

Question Type : **MCQ**
Question ID : **588552899**
Option 1 ID : **5885523593**
Option 2 ID : **5885523594**
Option 3 ID : **5885523596**
Option 4 ID : **5885523595**
Status : **Answered**
Chosen Option : **1**

**Q.9** If $p$ and $q$ are true and $r$ and $s$ are false statements, then which of the following is true?

**Ans**

✗ 1. $(q \wedge r) \vee (\sim p \wedge s)$

✗ 2. $(\sim p \rightarrow q) \leftrightarrow (r \wedge s)$

✓ 3. $(p \rightarrow q) \vee (r \leftrightarrow s)$

✗ 4. $(p \wedge \sim r) \wedge (\sim q \vee s)$

Question Type : **MCQ**
Question ID : **588552873**
Option 1 ID : **5885523492**
Option 2 ID : **5885523490**
Option 3 ID : **5885523491**
Option 4 ID : **5885523489**
Status : **Answered**
Chosen Option : **3**

**Q.10** If the standard deviation of the random variable X is $\sqrt{3pq}$ and mean is $3p$ then $E(x^2)$ = .....

**Ans**

✗ 1. $3pq + 3q^2$

✓ 2. $3p\ (1 + 2p)$

✗ 3. $3pq + 3p^2$

✗ 4. $3q\ (1 + 2q)$

Question Type : **MCQ**
Question ID : **588552852**
Option 1 ID : **5885523407**
Option 2 ID : **5885523405**
Option 3 ID : **5885523406**
Option 4 ID : **5885523408**
Status : **Marked For Review**
Chosen Option : **3**

**Q.11**

1 If $f(x) = [x]$, where $[x]$ is the greatest integer not greater than $x$ , then $f'(1^+) = \ldots\ldots$

Ans
- ✗ 1. 1
- ✗ 2. 2
- ✓ 3. 0
- ✗ 4. -1

Question Type : **MCQ**
Question ID : **588552867**
Option 1 ID : **5885523465**
Option 2 ID : **5885523468**
Option 3 ID : **5885523466**
Option 4 ID : **5885523467**
Status : **Answered**
Chosen Option : **3**

Q.12 If lines represented by $(1 + \sin^2\theta)\, x^2 + 2hxy + 2sin\theta\ y^2 = 0$ , $\theta \in [0, 2\pi]$ are perpendicular to each other then $\theta = \ldots\ldots$

Ans
- ✗ 1. $\frac{\pi}{2}$
- ✗ 2. $\pi$
- ✓ 3. $\frac{3\pi}{2}$
- ✗ 4. $\frac{\pi}{6}$

Question Type : **MCQ**
Question ID : **588552858**
Option 1 ID : **5885523431**
Option 2 ID : **5885523429**
Option 3 ID : **5885523430**
Option 4 ID : **5885523432**
Status : **Answered**
Chosen Option : **3**

Q.13 If A = $\{ x \mid x \in N,\ x$ is a prime number less than 12 $\}$ and B = $\{ x \mid x \in N, x$ is a factor of 10 $\}$, then A ∩ B = .....

Ans
- ✗ 1. {2}
- ✓ 2. {2,5}
- ✗ 3. {2,5,10}
- ✗ 4. {1,2,5,10}

Question Type : **MCQ**
Question ID : **588552887**
Option 1 ID : **5885523545**
Option 2 ID : **5885523546**
Option 3 ID : **5885523547**
Option 4 ID : **5885523548**
Status : **Answered**
Chosen Option : **2**

**Q.14** If R is the circumradius of $\Delta ABC$ ,then A($\Delta ABC$)= …….

**Ans**

✗ 1. $\frac{abc}{R}$

✓ 2. $\frac{abc}{4R}$

✗ 3. $\frac{abc}{3R}$

✗ 4. $\frac{abc}{2R}$

Question Type : **MCQ**
Question ID : **588552897**
Option 1 ID : **5885523585**
Option 2 ID : **5885523588**
Option 3 ID : **5885523587**
Option 4 ID : **5885523586**
Status : **Answered**
Chosen Option : **2**

**Q.15** **If A,B,C and D are (3,7,4),(5,-2,3),(-4,5,6) and (1,2,3) respectively, then the volume of the parallelopiped with AB, AC and AD as the co-terminus edges, is ……. cubic units.**

**Ans**

✗ 1. 91

✗ 2. 94

✓ 3. 92

✗ 4. 93

Question Type : **MCQ**
Question ID : **588552895**
Option 1 ID : **5885523579**
Option 2 ID : **5885523580**
Option 3 ID : **5885523578**
Option 4 ID : **5885523577**
Status : **Answered**
Chosen Option : **3**

**Q.16** If $(-\sqrt{2}, \sqrt{2})$ are cartesian co-ordinates of the point, then its polar co-ordinates are .....

**Ans**

✗ 1. $(1, \frac{4\pi}{3})$

✓ 2. $(2, \frac{3\pi}{4})$

✗ 3. $(3, \frac{7\pi}{4})$

✗ 4. $(4, \frac{5\pi}{4})$

Question Type : **MCQ**
Question ID : **588552884**
Option 1 ID : **5885523536**
Option 2 ID : **5885523535**
Option 3 ID : **5885523534**
Option 4 ID : **5885523533**
Status : **Answered**
Chosen Option : **2**

**Q.17** If $\int \frac{cosx-sinx}{8-sin2x}dx = \frac{1}{p}\log\left[\frac{3+sinx+cosx}{3-sinx-cosx}\right]$ + c , then p = .....

**Ans**

✓ 1. 6

✗ 2. 1

✗ 3. 3

✗ 4. 12

Question Type : **MCQ**

Question ID : **588552879**
Option 1 ID : **5885523513**
Option 2 ID : **5885523515**
Option 3 ID : **5885523516**
Option 4 ID : **5885523514**
Status : **Answered**
Chosen Option : **1**

**Q.18** **If A is non-singular matrix and (A + I) (A - I) = 0 then $A + A^{-1}$ =.....**

**Ans**

✔ 1. 2A

✗ 2. 0

✗ 3. I

✗ 4. 3 I

Question Type : **MCQ**
Question ID : **588552885**
Option 1 ID : **5885523538**
Option 2 ID : **5885523540**
Option 3 ID : **5885523537**
Option 4 ID : **5885523539**
Status : **Answered**
Chosen Option : **1**

**Q.19** Equations of planes parallel to the plane $x - 2y + 2z + 4 = 0$ which are at a distance of one unit from the point (1,2,3) are .....

**Ans**

✗ 1.

$$x + 2y + 2z = -6\,, x + 2y + 2z = 5$$

✗ 2.

$$x - 2y - 6 = 0\,, x - 2y + z = 6$$

✗ 3.

$$x + 2y + 2z = 6\,, x + 2y + 2z = 0$$

✔ 4.

$$x - 2y + 2z = 0\,, x - 2y + 2z - 6 = 0$$

Question Type : **MCQ**
Question ID : **588552894**
Option 1 ID : **5885523575**
Option 2 ID : **5885523574**
Option 3 ID : **5885523576**
Option 4 ID : **5885523573**
Status : **Answered**
Chosen Option : **4**

**Q.20** **The y-intercept of the line passing through A(6,1) and perpendicular to the line x - 2y = 4 is .....**

**Ans**

✗ 1. 5

✓ 2. 13

✗ 3. -2

✗ 4. 26

Question Type : **MCQ**
Question ID : **588552875**
Option 1 ID : **5885523499**
Option 2 ID : **5885523497**
Option 3 ID : **5885523500**
Option 4 ID : **5885523498**
Status : **Answered**
Chosen Option : **2**

Q.21 If function $f(x) = x - \frac{|x|}{x}$ , $x < 0$

$= x + \frac{|x|}{x}$ , $x > 0$

$= 1$ , $x = 0$, then .....

Ans

✗ 1. $\lim_{x \to 0^-} f(x)$ does not exist

✗ 2. $\lim_{x \to 0^+} f(x)$ does not exist

✓ 3.

f($x$) is continuous at $x = 0$

✗ 4. $\lim_{x \to 0^-} f(x) \neq \lim_{x \to 0^+} f(x)$

Question Type : **MCQ**
Question ID : **588552868**
Option 1 ID : **5885523470**
Option 2 ID : **5885523471**
Option 3 ID : **5885523469**
Option 4 ID : **5885523472**
Status : **Answered**
Chosen Option : **4**

Q.22 In ΔABC, if $tanA + tanB + tanC = 6$ and $tanA.tanB = 2$ then $tanC$ = .....

Ans

✓ 1. 3

✗ 2. 4

✗ 3. 1

✗ 4. 2

Question Type : **MCQ**
Question ID : **588552863**
Option 1 ID : **5885523451**
Option 2 ID : **5885523452**
Option 3 ID : **5885523449**
Option 4 ID : **5885523450**
Status : **Answered**
Chosen Option : **1**

**Q.23** If P(6,10,10), Q(1,0,-5) , R(6,-10, $\lambda$) are vertices of a triangle right angled at Q, then value of $\lambda$ is ……

**Ans**

✓ 1. 0

✗ 2. 1

✗ 3. 3

✗ 4. 2

Question Type : **MCQ**
Question ID : **588552857**
Option 1 ID : **5885523425**
Option 2 ID : **5885523426**
Option 3 ID : **5885523428**
Option 4 ID : **5885523427**
Status : **Answered**
Chosen Option : **1**

**Q.24** For L.P.P, maximize $z = 4x_1 + 2x_2$ subject to $3x_1 + 2x_2 \geq 9,\ x_1 - x_2 \leq 3$ , $x_1 \geq 0\ , x_2 \geq 0$ has ……

**Ans**

✗ 1. Infinite number of optimal solutions

✓ 2. Unbounded solution

✗ 3. No solution

✗ 4. One optimal solution

Question Type : **MCQ**
Question ID : **588552856**
Option 1 ID : **5885523422**
Option 2 ID : **5885523421**
Option 3 ID : **5885523423**
Option 4 ID : **5885523424**
Status : **Answered**
Chosen Option : **2**

**Q.25** The function $f(x) = x^3 - 3x$ is ……..

**Ans**

✓ 1.

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

✗ 2.

increasing in $(0,\infty)$and decreasing in$(-\infty, 0)$ .

✗ 3.

decreasing in $(0,\infty)$and increasing in$(-\infty, 0)$ .

✗ 4.

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

Question Type : **MCQ**
Question ID : **588552876**
Option 1 ID : **5885523501**
Option 2 ID : **5885523503**
Option 3 ID : **5885523504**
Option 4 ID : **5885523502**
Status : **Answered**
Chosen Option : **1**

**Q.26** If $x = sin\theta$ , $y = sin^3\theta$ then $\frac{d^2y}{dx^2}$ at $\theta = \frac{\pi}{2}$ is .....

**Ans**

✗ 1. 3

✓ 2. 6

✗ 3. $\frac{1}{6}$

✗ 4. $\frac{1}{3}$

Question Type : **MCQ**
Question ID : **588552880**
Option 1 ID : **5885523518**
Option 2 ID : **5885523517**
Option 3 ID : **5885523519**
Option 4 ID : **5885523520**
Status : **Answered**
Chosen Option : **2**

**Q.27** The area of the region enclosed between pair of the lines $xy = 0$ and the lines $xy + 5x - 4y - 20 = 0$, is .....

**Ans**

✓ 1. 20 square units

✗ 2. $\frac{4}{5}$ square units

✗ 3. 10 square units

✗ 4. 6 square units

Question Type : **MCQ**
Question ID : **588552896**
Option 1 ID : **5885523581**
Option 2 ID : **5885523583**
Option 3 ID : **5885523582**
Option 4 ID : **5885523584**
Status : **Answered**
Chosen Option : **1**

**Q.2 if three dice are thrown then the probability that the sum of the numbers on their uppermost 8 faces to be at least 5 is**

**Ans**

✗ 1. $\frac{1}{53}$

✓ 2. $\frac{53}{54}$

✗ 3. $\frac{1}{54}$

✗ 4. $\frac{52}{53}$

Question Type : **MCQ**
Question ID : **588552886**
Option 1 ID : **5885523544**
Option 2 ID : **5885523542**
Option 3 ID : **5885523543**
Option 4 ID : **5885523541**
Status : **Answered**
Chosen Option : **2**

Q.29 If $f(x) = 3x + 6, g(x) = 4x + k$ and $fog(x) = gof(x)$ then $k =$ .....

Ans

✗ 1. -9

✗ 2. 18

✗ 3. $\frac{1}{9}$

✓ 4. 9

Question Type : **MCQ**
Question ID : **588552874**
Option 1 ID : **5885523493**
Option 2 ID : **5885523496**
Option 3 ID : **5885523495**
Option 4 ID : **5885523494**
Status : **Answered**
Chosen Option : **4**

Q.30 If the sum of an infinite G.P be 9 and sum of first two terms be 5 then their common ratio is .....

Ans

✗ 1. $\frac{1}{3}$

✗ 2. 3

✓ 3. $\frac{2}{3}$

✗ 4. $\frac{3}{2}$

Question Type : **MCQ**
Question ID : **588552861**
Option 1 ID : **5885523443**
Option 2 ID : **5885523444**
Option 3 ID : **5885523441**
Option 4 ID : **5885523442**
Status : **Answered**
Chosen Option : **3**

Q.31 The negation of "$\forall\, n \in N, n+7>6$" is ...

Ans

✔ 1. $\exists n \in N$, such that $n+7 \leq 6$

✘ 2. $\exists n \in N$, such that $n+7 \geq 6$

✘ 3. $\forall n \in N, n+7 \leq 6$

✘ 4. $\exists n \in N$, such that $n+7<6$

Question Type : **MCQ**
Question ID : **588552898**
Option 1 ID : **5885523589**
Option 2 ID : **5885523591**
Option 3 ID : **5885523590**
Option 4 ID : **5885523592**
Status : **Answered**
Chosen Option : **1**

Q.32 If the vectors $x\hat{\imath}-3\hat{\jmath}+7\hat{k}$ and $\hat{\imath}+y\hat{\jmath}-z\hat{k}$ are collinear then the value of $\frac{xy^2}{z}$ is equal to

Ans

✘ 1. $\frac{9}{7}$

✔ 2. $\frac{-9}{7}$

✘ 3. $\frac{-7}{9}$

✘ 4. $\frac{7}{9}$

Question Type : **MCQ**
Question ID : **588552883**
Option 1 ID : **5885523532**
Option 2 ID : **5885523530**
Option 3 ID : **5885523529**
Option 4 ID : **5885523531**
Status : **Answered**
Chosen Option : **2**

**Q.33** If $\int \tan(x-\alpha)\tan(x+\alpha)\,.\,tan2x\,dx = plog|sec2x| + qlog|\sec(x+\alpha)| + rlog|\sec(x-\alpha)| + c$ then $p+q+r =$.....

**Ans**

✔ 1. $\frac{-3}{2}$

✘ 2. $\frac{-5}{2}$

✘ 3. $\frac{5}{2}$

✘ 4. $\frac{3}{2}$

Question Type : **MCQ**
Question ID : **588552892**
Option 1 ID : **5885523566**
Option 2 ID : **5885523568**
Option 3 ID : **5885523567**
Option 4 ID : **5885523565**
Status : **Answered**
Chosen Option : **1**

**Q.34** **Using Differentiation, approximate value of f(x) = $x^2$ - 2x + 1 at x = 2.99 is .....**

**Ans**

✔ 1. 3.96

✘ 2. 9.96

✘ 3. 4.98

✘ 4. 5.98

Question Type : **MCQ**

Question ID : **588552851**
Option 1 ID : **5885523401**
Option 2 ID : **5885523403**
Option 3 ID : **5885523402**
Option 4 ID : **5885523404**
Status : **Answered**
Chosen Option : **1**

Q.35 **A particle moves so that $x = 2 + 27t - t^3$ . The direction of motion reverses after moving a distance of ..... units.**

Ans
✗ 1. 80
✓ 2. 56
✗ 3. 60
✗ 4. 65

Question Type : **MCQ**
Question ID : **588552889**
Option 1 ID : **5885523556**
Option 2 ID : **5885523554**
Option 3 ID : **5885523555**
Option 4 ID : **5885523553**
Status : **Marked For Review**
Chosen Option : **2**

Q.36 Which of the following is *NOT* equal to $\bar{w}.(\bar{u} \times \bar{v})$ ?

Ans
✗ 1. $\bar{u}.(\bar{v} \times \bar{w})$

✗ 2. $\bar{v}.(\bar{w} \times \bar{u})$

✗ 3. $(\bar{u} \times \bar{v}).\bar{w}$

✓ 4. $\bar{v}.(\bar{u} \times \bar{w})$

Question Type : **MCQ**
Question ID : **588552870**
Option 1 ID : **5885523477**
Option 2 ID : **5885523478**
Option 3 ID : **5885523480**
Option 4 ID : **5885523479**
Status : **Answered**
Chosen Option : **4**

Q.37 The value of $sin18°$ is . . . . . .

Ans

✗ 1. $\frac{\sqrt{5}+1}{4}$

✓ 2. $\frac{\sqrt{5}-1}{4}$

✗ 3. $\frac{4}{\sqrt{5}+1}$

✗ 4. $\frac{4}{\sqrt{5}-1}$

Question Type : **MCQ**
Question ID : **588552888**
Option 1 ID : **5885523549**
Option 2 ID : **5885523550**
Option 3 ID : **5885523552**
Option 4 ID : **5885523551**
Status : **Answered**
Chosen Option : **2**

**Q.38 If the foot of the perpendicular drawn from the point (0,0,0) to the plane is (4,-2,-5) then the equation of the plane is.....**

**Ans**

✗ 1. 4x + 2y + 5z = -13

✓ 2. 4x - 2y - 5z = 45

✗ 3. 4x + 2y - 5z = 37

✗ 4. 4x - 2y + 5z = -5

Question Type : **MCQ**
Question ID : **588552869**
Option 1 ID : **5885523475**
Option 2 ID : **5885523473**
Option 3 ID : **5885523476**
Option 4 ID : **5885523474**
Status : **Answered**

Chosen Option : **2**

Q.39 $\int \frac{x^2+1}{x^4-x^2+1}dx = \cdots$

Ans

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

✗ 2. $\tan^{-1}(x^2)+c$

✗ 3. $\tan^{-1}(2x^2-1)+c$

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

Question Type : **MCQ**
Question ID : **588552854**
Option 1 ID : **5885523416**
Option 2 ID : **5885523415**
Option 3 ID : **5885523414**
Option 4 ID : **5885523413**
Status : **Answered**
Chosen Option : **4**

Q.40 If $x^y = e^{x-y}$, then $\frac{dy}{dx}$ at $x = 1$ is .....

Ans

✗ 1. $e$

✗ 2. 1

✓ 3. 0

✗ 4. -1

Question Type : **MCQ**

Question ID : **588552855**
Option 1 ID : **5885523420**
Option 2 ID : **5885523417**
Option 3 ID : **5885523418**
Option 4 ID : **5885523419**
Status : **Answered**
Chosen Option : **3**

**Q.41** If A = $\begin{bmatrix} 1+2i & i \\ -i & 1-2i \end{bmatrix}$, where $i = \sqrt{-1}$, then A(adjA)= .....

**Ans**

✗ 1. -2 I

✗ 2. 2 I

✗ 3. 5 I

✓ 4. 4 I

Question Type : **MCQ**
Question ID : **588552872**
Option 1 ID : **5885523485**
Option 2 ID : **5885523486**
Option 3 ID : **5885523488**
Option 4 ID : **5885523487**
Status : **Answered**
Chosen Option : **4**

**Q.42** Which of the following statement is contingency?

**Ans**

✗ 1. $(p \vee q) \vee \sim q$

✗ 2. $(p \vee q) \vee \sim p$

✓ 3. $(p \vee q) \wedge \sim q$

✗ 4. $p \longrightarrow (p \vee q)$

Question Type : **MCQ**
Question ID : **588552860**
Option 1 ID : **5885523438**
Option 2 ID : **5885523437**
Option 3 ID : **5885523440**
Option 4 ID : **5885523439**
Status : **Answered**
Chosen Option : **3**

**Q.43**

$$\int_a^b \frac{\sqrt{x}}{\sqrt{x}+\sqrt{a+b-x}}dx = \cdots$$

Ans

✗ 1. a+b

✓ 2. $\frac{b-a}{2}$

✗ 3. a-b

✗ 4. $\frac{a-b}{2}$

Question Type : **MCQ**
Question ID : **588552891**
Option 1 ID : **5885523563**
Option 2 ID : **5885523562**
Option 3 ID : **5885523564**
Option 4 ID : **5885523561**
Status : **Answered**
Chosen Option : **2**

Q.44 The intercept on the line $y = x$ by the circle $x^2+y^2-2x = 0$ is AB. The equation of the circle with AB as a diameter is .....

Ans

✗ 1. $x^2+y^2+x+y=0$

✓ 2. $x^2+y^2-x-y=0$

✗ 3. $x^2+y^2-3x+y=0$

✗ 4. $x^2+y^2+3x-y=0$

Question Type : **MCQ**
Question ID : **588552862**
Option 1 ID : **5885523445**
Option 2 ID : **5885523446**
Option 3 ID : **5885523447**

Option 4 ID : **5885523448**
Status : **Answered**
Chosen Option : **2**

**Q.45** The equation of the circle concentric with the circle $x^2 + y^2 - 6x - 4y - 12 = 0$ and touching the Y-axis is .....

**Ans**

✔ 1.

$$x^2 + y^2 - 6x - 4y + 4 = 0$$

✘ 2.

$$x^2 + y^2 - 6x - 4y + 9 = 0$$

✘ 3.

$$x^2 + y^2 - 6x - 4y - 4 = 0$$

✘ 4.

$$x^2 + y^2 - 6x - 4y - 9 = 0$$

Question Type : **MCQ**
Question ID : **588552900**
Option 1 ID : **5885523600**
Option 2 ID : **5885523597**
Option 3 ID : **5885523599**
Option 4 ID : **5885523598**
Status : **Answered**
Chosen Option : **2**

**Q.46** $\int_0^1 x(1-x)^5\,dx = .....$

**Ans**

✘ 1. $\frac{1}{5}$

✔ 2. $\frac{1}{42}$

✘ 3. $\frac{1}{13}$

✘ 4. $\frac{13}{42}$

Question Type : **MCQ**
Question ID : **588552866**
Option 1 ID : **5885523464**
Option 2 ID : **5885523463**
Option 3 ID : **5885523461**
Option 4 ID : **5885523462**
Status : **Answered**
Chosen Option : **2**

Q.47 If $4\sin^{-1}x + 6\cos^{-1}x = 3\pi$ then $x = \ldots\ldots$

Ans

✘ 1. $\frac{1}{\sqrt{2}}$

✘ 2. $\frac{1}{2}$

✔ 3. 0

✘ 4. $\frac{-1}{2}$

Question Type : **MCQ**
Question ID : **588552871**

Option 1 ID : **5885523482**
Option 2 ID : **5885523483**
Option 3 ID : **5885523484**
Option 4 ID : **5885523481**
Status : **Answered**
Chosen Option : **3**

Q.48

If $\int_0^a \sqrt{\frac{a-x}{x}}\, dx = \frac{K}{2}$ , then $K$ = .....

Ans

✗ 1. $\frac{\pi a}{2}$

✗ 2. $\frac{5\pi a}{2}$

✗ 3. $\frac{3\pi a}{2}$

✓ 4. $\pi a$

Question Type : **MCQ**
Question ID : **588552853**
Option 1 ID : **5885523410**
Option 2 ID : **5885523412**
Option 3 ID : **5885523411**
Option 4 ID : **5885523409**
Status : **Answered**
Chosen Option : **4**

Q.49

In ΔABC; with usual notations, $\frac{bSinB-cSinC}{Sin(B-C)}$ = .....

Ans

✗ 1. $b$

✗ 2. $a+b+c$

✓ 3. $a$

✗ 4. $c$

| | |
|---|---|
| Question Type : | **MCQ** |
| Question ID : | **588552859** |
| Option 1 ID : | **5885523434** |
| Option 2 ID : | **5885523436** |
| Option 3 ID : | **5885523433** |
| Option 4 ID : | **5885523435** |
| Status : | **Answered** |
| Chosen Option : | **3** |

**Q.50** The solution of the differential equation $\frac{d\theta}{dt} = -k(\theta - \theta_0)$ where k is constant, is .....

**Ans**

✓ 1. $\theta = \theta_0 + ae^{-kt}$

✗ 2. $\theta = \theta_0 + ae^{kt}$

✗ 3. $\theta = 2\theta_0 - ae^{kt}$

✗ 4. $\theta = 2\theta_0 - ae^{-kt}$

| | |
|---|---|
| Question Type : | **MCQ** |
| Question ID : | **588552878** |
| Option 1 ID : | **5885523509** |
| Option 2 ID : | **5885523510** |
| Option 3 ID : | **5885523512** |
| Option 4 ID : | **5885523511** |
| Status : | **Answered** |
| Chosen Option : | **1** |