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State Common Entrance Test Cell,
Maharashtra State

MHT CET 2020 Question Paper

PCM

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Participant ID:	
Participant Name:	
Test Center Name:	Shree L R Tiwari College of Engineering
Test Date:	20/10/2020
Test Time:	2:30 PM - 5:30 PM
Subject:	PCM

Section : **Physics**

Q.1 The kinetic energy of a light body and a heavy body is same. Which one of the following statements is CORRECT?

Ans

✗ 1. The light body has greater momentum.

✗ 2. A body having high velocity has greater momentum.

✗ 3. Both bodies have same momentum.

✓ 4. The heavy body has greater momentum.

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Question Type : **MCQ**
Question ID : **37135117474**
Option 1 ID : **37135169894**
Option 2 ID : **37135169895**
Option 3 ID : **37135169896**
Option 4 ID : **37135169893**
Status : **Marked For Review**
Chosen Option : **4**

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Q.2

A simple pendulum has length 2m and a bob of mass 100 gram. It is whirled in a horizontal plane. If the string breaks under a tension of 10 N, the angle made by the string with vertical is ($g = 10 m/s^2$)

Ans

✗ 1. $\cos^{-1}(0{\cdot}4)$

✓ 2. $\cos^{-1}(0{\cdot}1)$

✗ 3. $\cos^{-1}(0{\cdot}05)$

✗ 4. $\cos^{-1}(0{\cdot}2)$

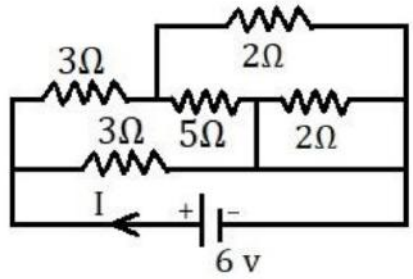
Question Type : **MCQ**
Question ID : **37135117481**
Option 1 ID : **37135169921**
Option 2 ID : **37135169923**
Option 3 ID : **37135169924**
Option 4 ID : **37135169922**
Status : **Answered**
Chosen Option : **3**

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Q.3

The current drawn from the battery in the given network is

(Internal resistance of battery is neglected)



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Ans

✔ 1. 2·4 A

✗ 2. 0·6 A

✗ 3. 3·6 A

✗ 4. 1·2 A

Question Type :	**MCQ**
Question ID :	**37135117490**
Option 1 ID :	**37135169958**
Option 2 ID :	**37135169960**
Option 3 ID :	**37135169957**
Option 4 ID :	**37135169959**
Status :	**Marked For Review**
Chosen Option :	**3**

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Q.4

In the expression $A = B + \frac{C}{D+E}$, the dimensions of physical quantities B and C are $[L^1M^0T^{-1}]$ and $[L^1M^0T^0]$respectively. The dimensions of quantities A, D and E are

Ans

✔ 1.

$$[A] = [L^1M^0T^{-1}], \quad [D] = [T^1], [E] = [T^1]$$

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✗ 2.

$$[A] = [L^0M^0T^{-1}], \quad [D] = [T^1], [E] = [L^1T^1]$$

✗ 3.

$$[A] = [L^1M^1T^0], \quad [D] = [T^2], [E] = [L^1T^2]$$

✗ 4.

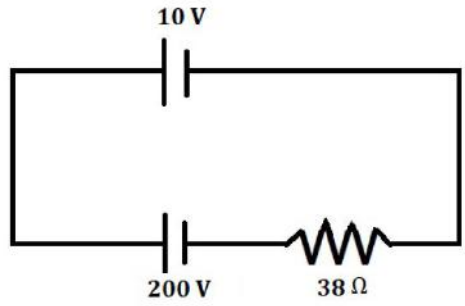
$$[A] = [L^1M^0T^{-1}], \quad [D] = [M^1T^1], [E] = [M^1T^1]$$

Question Type : **MCQ**
Question ID : **37135117478**
Option 1 ID : **37135169912**
Option 2 ID : **37135169909**
Option 3 ID : **37135169910**
Option 4 ID : **37135169911**
Status : **Answered**
Chosen Option : **1**

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Q.5

In the given circuit, current flowing through it is



13

Ans

✔ 1. 5 A

✘ 2. 4 A

✘ 3. 2 A

✘ 4. 3 A

Question Type : **MCQ**
Question ID : **37135117461**
Option 1 ID : **37135169844**
Option 2 ID : **37135169843**
Option 3 ID : **37135169841**
Option 4 ID : **37135169842**
Status : **Answered**
Chosen Option : **1**

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Q.6 Two satellites of masses 'm' and '4m' are revolving in a same orbit around the earth. Which one of the following statements is correct?

Ans

✗ 1.

They have periods in the ratio 1:4.

2

✗ 2.

They have same kinetic energy.

✗ 3.

They have same potential energy.

✓ 4.

They have same period.

Question Type : **MCQ**
Question ID : **37135117460**
Option 1 ID : **37135169839**
Option 2 ID : **37135169838**
Option 3 ID : **37135169840**
Option 4 ID : **37135169837**
Status : **Answered**
Chosen Option : **4**

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Q.7

Choose the CORRECT statement from the following.

Brewster's angle for a transparent medium is

Ans

✔ 1.

different for lights of different colours.

✗ 2.

different for lights of same colour.

✗ 3.

same for lights of different colours.

✗ 4.

independent of refractive index of the medium.

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Question Type :	**MCQ**
Question ID :	**37135117479**
Option 1 ID :	**37135169913**
Option 2 ID :	**37135169916**
Option 3 ID :	**37135169914**
Option 4 ID :	**37135169915**
Status :	**Marked For Review**
Chosen Option :	**1**

Q.8

A vector $\vec{A}$ having magnitude 6 units is added to vector $\vec{B}$, which is along x-axis. The resultant of $\vec{A}$ and $\vec{B}$ is along Y axis. If the magnitude of the resultant of $\vec{A}$ and $\vec{B}$ is three times that of $\vec{B}$ then magnitude of $\vec{B}$ is

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Ans

✗ 1. $\sqrt{1 \cdot 8}$

✗ 2. $\sqrt{2 \cdot 4}$

✔ 3. $\sqrt{3 \cdot 6}$

✗ 4. $\sqrt{1 \cdot 2}$

Question Type :	**MCQ**
Question ID :	**37135117458**
Option 1 ID :	**37135169831**
Option 2 ID :	**37135169830**
Option 3 ID :	**37135169829**
Option 4 ID :	**37135169832**
Status :	**Answered**
Chosen Option :	**3**

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Q.9

Let a force $\vec{F} = -F\hat{k}$ acts on the origin of cartesian frame of reference. The moment of force about a point $(1, -1)$ will be

Ans

✗ 1. $\div F(\hat{i} + \hat{j})$

✗ 2. $-F(\hat{i} - \hat{j})$

✗ 3. $F(\hat{i} - \hat{j})$

✓ 4. $F(\hat{i} + \hat{j})$

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Question Type : **MCQ**
Question ID : **37135117488**
Option 1 ID : **37135169949**
Option 2 ID : **37135169951**
Option 3 ID : **37135169952**
Option 4 ID : **37135169950**
Status : **Marked For Review**
Chosen Option : **2**

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Q.10 In an atom, electron of charge $(-e)$ performs U.C.M. around a stationary positively charged nucleus, with period of revolution 'T'. If 'r' is the radius of the orbit of the electron and 'v' is the orbital velocity, then the circulating current (I) is proportional to

Ans

✗ 1. $e^1r^{-1}v^{-1}$

✗ 2. $e^1r^1v^{-1}$

✓ 3. $e^1v^1r^{-1}$

✗ 4. $v^1r^1e^{-1}$

Question Type : **MCQ**
Question ID : **37135117465**
Option 1 ID : **37135169860**
Option 2 ID : **37135169857**
Option 3 ID : **37135169859**
Option 4 ID : **37135169858**
Status : **Answered**
Chosen Option : **2**

Q.11 A body of mass 'm' moving with speed 3 m/s collides with a body of mass '2m' at rest. The coalesced mass will start to move with a speed of

Ans

✗ 1. 3 m/s

✗ 2. 6 m/s

✗ 3. 9 m/s

✓ 4. 1 m/s

Question Type : **MCQ**
Question ID : **37135117483**
Option 1 ID : **37135169930**
Option 2 ID : **37135169931**
Option 3 ID : **37135169932**
Option 4 ID : **37135169929**
Status : **Marked For Review**
Chosen Option : **1**

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Q.12 We have a sample of gas characterised by P, V and T and another sample of gas characterised by 2P, V/4, and 2T. What is the ratio of the number of molecules in the first and second samples?

Ans

1. ✗ 2:1
2. ✓ 4:1
3. ✗ 8:1
4. ✗ 16:1

Question Type : **MCQ**
Question ID : **37135117466**
Option 1 ID : **37135169861**
Option 2 ID : **37135169862**
Option 3 ID : **37135169863**
Option 4 ID : **37135169864**
Status : **Answered**
Chosen Option : **2**

Q.13 When a capacitor is connected in series LR circuit, the alternating current flowing in the circuit

Ans

1. ✓ increases.
2. ✗ decreases.
3. ✗ remains constant.
4. ✗ is zero.

Question Type : **MCQ**
Question ID : **37135117495**
Option 1 ID : **37135169977**
Option 2 ID : **37135169978**
Option 3 ID : **37135169979**
Option 4 ID : **37135169980**
Status : **Marked For Review**
Chosen Option : **2**

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Q.14

A black body radiates maximum energy at wavelength 'λ' and its emissive power is 'E'. Now, due to change in temperature of that body, it radiates maximum energy at wavelength $\frac{2\lambda}{3}$. At that temperature, emissive power is

Ans

✗ 1. $\frac{27E}{16}$

✓ 2. $\frac{81E}{16}$

✗ 3. $\frac{91E}{16}$

✗ 4. $\frac{54E}{16}$

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Question Type : **MCQ**
Question ID : **37135117497**
Option 1 ID : **37135169985**
Option 2 ID : **37135169987**
Option 3 ID : **37135169988**
Option 4 ID : **37135169986**
Status : **Answered**
Chosen Option : **2**

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Q.15

The area of a coil is 'A'. The coil is placed in a magnetic field which changes from 'B_0' to '$4B_0$' in time 't'. The magnitude of induced e.m.f. in the coil will be

Ans

✔ 1. $\frac{3AB_0}{t}$

✗ 2. $\frac{4AB_0}{t}$

✗ 3. $\frac{3B_0}{At}$

✗ 4. $\frac{4B_0}{At}$

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Question Type : **MCQ**
Question ID : **37135117470**
Option 1 ID : **37135169880**
Option 2 ID : **37135169879**
Option 3 ID : **37135169878**
Option 4 ID : **37135169877**
Status : **Answered**
Chosen Option : **1**

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Q.16 A body is moving along the horizontal surface with a velocity of 4 m/s. If the coefficient of kinetic friction is 0·2, the distance travelled by body before coming to rest is ($g = 10\ m/s^2$)

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Ans

✗ 1. 8 m

✗ 2. 16 m

✓ 3. 4 m

✗ 4. 6 m

Question Type : **MCQ**
Question ID : **37135117493**
Option 1 ID : **37135169970**
Option 2 ID : **37135169969**
Option 3 ID : **37135169972**
Option 4 ID : **37135169971**
Status : **Answered**
Chosen Option : **3**

Q.17 The fundamental frequency of open pipe is 'n'. If it is closed from one end then frequency of the 2nd harmonic of closed pipe is higher by 200 Hz than 'n'. The value of 'n' is

4

Ans

✗ 1. 800 Hz

✗ 2. 200 Hz

✗ 3. 100 Hz

✓ 4. 400 Hz

Question Type : **MCQ**
Question ID : **37135117491**
Option 1 ID : **37135169964**
Option 2 ID : **37135169962**
Option 3 ID : **37135169961**
Option 4 ID : **37135169963**
Status : **Answered**
Chosen Option : **4**

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Q.18

Identify the 'INCORRECT' statement from the following.

Ans

✔ 1.

Modulation index μ is kept greater than one to avoid distortion.

✗ 2.

The receiving antenna is followed by amplifier, intermediate frequency (IF) stage and detector.

✗ 3.

AM detection is carried out using a rectifier and an envelop detector.

✗ 4.

Modulated signal is to be followed by power amplifier and then fed to an antenna.

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Question Type : **MCQ**
Question ID : **37135117475**
Option 1 ID : **37135169899**
Option 2 ID : **37135169900**
Option 3 ID : **37135169897**
Option 4 ID : **37135169898**
Status : **Marked For Review**
Chosen Option : **2**

Q.19

If two light waves reaching at a point produce destructive interference, then condition of phase difference is

Ans

✗ 1. $0, 2\pi, 4\pi, 6\pi \ldots\ldots$

✗ 2. $\frac{\pi}{4}, \frac{\pi}{2}, \frac{3\pi}{4} \ldots\ldots$

✗ 3. $\frac{\pi}{2}, \frac{3\pi}{2}, \frac{5\pi}{2} \ldots\ldots$

✔ 4. $\pi, 3\pi, 5\pi \ldots\ldots$

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Question Type : **MCQ**
Question ID : **37135117471**
Option 1 ID : **37135169881**
Option 2 ID : **37135169884**
Option 3 ID : **37135169882**
Option 4 ID : **37135169883**
Status : **Answered**
Chosen Option : **4**

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Q.20

What would be the absolute pressure at depth 1km below the ocean?

[Given : density of water = 10^3 kg/m^3, g = 10 m/s^2, 1 atmospheric pressure = $1{\cdot}01 \times 10^5$ N/m^2]

Ans

✗ 1. $10{\cdot}101 \times 10^7$ N/m^2

✗ 2. $10{\cdot}101 \times 10^7$ dyne/cm^2

✗ 3. $10{\cdot}101 \times 10^6$ dyne/cm^2

✓ 4. $10{\cdot}101 \times 10^6$ N/m^2

2:4

Question Type : **MCQ**
Question ID : **37135117452**
Option 1 ID : **37135169807**
Option 2 ID : **37135169808**
Option 3 ID : **37135169806**
Option 4 ID : **37135169805**
Status : **Answered**
Chosen Option : **4**

Q.21

An alternating electric field of frequency 'ν' is applied across the dees of a cyclotron which is used to accelerate protons of mass 'm'. The radius of the dees is 'R'. The operating magnetic field used in cyclotron is 'B'. The kinetic energy of the proton beam is given by

Ans

✓ 1. $2m\ \pi^2\ \nu^2 R^2$

✗ 2. $2m\pi\ \nu^2 R^2$

✗ 3. $m\ \pi^2\ \nu^2 R^2$

✗ 4. $m\ \pi\ \nu^2 R^2$

1 4

Question Type : **MCQ**
Question ID : **37135117487**
Option 1 ID : **37135169948**
Option 2 ID : **37135169947**
Option 3 ID : **37135169946**
Option 4 ID : **37135169945**
Status : **Answered**
Chosen Option : **1**

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Q.22 What will be the resistance of the shunt when 5% of the main current is passed through a galvanometer of resistance G?

Ans

✗ 1. $\frac{G}{20}$

✗ 2. $\frac{G}{21}$

✗ 3. $\frac{G}{5}$

✓ 4. $\frac{G}{19}$

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Question Type : **MCQ**
Question ID : **37135117467**
Option 1 ID : **37135169867**
Option 2 ID : **37135169868**
Option 3 ID : **37135169865**
Option 4 ID : **37135169866**
Status : **Answered**
Chosen Option : **4**

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Q.23 An engine is moving on a circular path of radius 200 m with speed of 15 m/s. What will be the frequency heard by an observer who is at rest at the centre of the circular path, when engine blows the whistle with frequency 250 Hz?

Ans

✗ 1. Less than 250 Hz

✗ 2. Greater than 250 Hz

✓ 3. 250 Hz

✗ 4. zero

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Question Type : **MCQ**
Question ID : **37135117486**
Option 1 ID : **37135169942**
Option 2 ID : **37135169944**
Option 3 ID : **37135169943**
Option 4 ID : **37135169941**
Status : **Answered**
Chosen Option : **3**

Q.24 In a resonance tube experiment, a tuning fork resonates with air column of length 12 cm and again resonates when air column is 38 cm long. The end correction will be

8

Ans

✗ 1. 0·25 cm

✗ 2. 0·5 cm

✓ 3. 1 cm

✗ 4. 0·75 cm

Question Type : **MCQ**
Question ID : **37135117455**
Option 1 ID : **37135169817**
Option 2 ID : **37135169818**
Option 3 ID : **37135169820**
Option 4 ID : **37135169819**
Status : **Answered**
Chosen Option : **3**

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Q.25

When the electron orbiting in hydrogen atom in its ground state moves to third excited state, the de-Broglie wavelength associated with it

Ans

1. ✗ will decrease.
2. ✗ remain same.
3. ✓ will increase.
4. ✗ will be zero.

18

Question Type : **MCQ**
Question ID : **37135117492**
Option 1 ID : **37135169965**
Option 2 ID : **37135169966**
Option 3 ID : **37135169968**
Option 4 ID : **37135169967**
Status : **Answered**
Chosen Option : **1**

Q.26

A particle is revolving in anticlockwise sense along the circumference of a circle of radius 'r' with linear velocity 'v', then the angle between 'v' and angular velocity 'ω' will be

Ans

1. ✗ 180°
2. ✓ 90°
3. ✗ 45°
4. ✗ 0°

1

Question Type : **MCQ**
Question ID : **37135117464**
Option 1 ID : **37135169856**
Option 2 ID : **37135169855**
Option 3 ID : **37135169854**
Option 4 ID : **37135169853**
Status : **Marked For Review**
Chosen Option : **4**

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Q.27 If the spherical planet of mass 'M' and radius 'R' suddenly shrinks to half its size, its mass reduces to half. The new moment of inertia of the planet about its diameter is

Ans

✗ 1. $\frac{MR^2}{10}$

✓ 2. $\frac{MR^2}{20}$

✗ 3. $\frac{2}{3}MR^2$

✗ 4. $\frac{2}{5}MR^2$

3

Question Type : **MCQ**
Question ID : **37135117456**
Option 1 ID : **37135169822**
Option 2 ID : **37135169824**
Option 3 ID : **37135169823**
Option 4 ID : **37135169821**
Status : **Answered**
Chosen Option : **1**

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Q.28

A particle starts from mean position and performs S.H.M. with period 6 second. At what time its kinetic energy is 50% of total energy? ($\cos 45° = \frac{1}{\sqrt{2}}$)

Ans

✔ 1. 0·75 second

✗ 2. 1 second

✗ 3. 0· 25 second

✗ 4. 0·50 second

Question Type : **MCQ**
Question ID : **37135117469**
Option 1 ID : **37135169874**
Option 2 ID : **37135169873**
Option 3 ID : **37135169876**
Option 4 ID : **37135169875**
Status : **Answered**
Chosen Option : **1**

Q.29

The susceptibility of a magnetic material is positive and small. The material is

Ans

✗ 1. diamagnetic and ferromagnetic.

✔ 2. paramagnetic.

✗ 3. ferromagnetic.

✗ 4. diamagnetic.

Question Type : **MCQ**
Question ID : **37135117477**
Option 1 ID : **37135169908**
Option 2 ID : **37135169906**
Option 3 ID : **37135169907**
Option 4 ID : **37135169905**
Status : **Answered**
Chosen Option : **2**

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Q.30

Photoelectrons are emitted from a photosensitive surface for the light of wavelengths $\lambda_1 = 360$ nm and $\lambda_2 = 600$ nm. What is the ratio of work functions for lights of wavelength 'λ_1' to 'λ_2' ?

Ans

✗ 1. 6:1

✗ 2. 1:6

✓ 3. 5:3

✗ 4. 3:5

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Question Type : **MCQ**
Question ID : **37135117459**
Option 1 ID : **37135169835**
Option 2 ID : **37135169834**
Option 3 ID : **37135169836**
Option 4 ID : **37135169833**
Status : **Answered**
Chosen Option : **3**

Q.31

Choose the correct relation between polarisation 'P' and electric susceptibility 'χ_e' of dielectric material. (E = electric field)

Ans

✗ 1. $P = \frac{\chi e}{E^2}$

✗ 2. $P = \frac{\chi e}{E}$

✓ 3. $P = \chi_e E$

✗ 4. $P = \chi_e^2 E$

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Question Type : **MCQ**
Question ID : **37135117454**
Option 1 ID : **37135169814**
Option 2 ID : **37135169813**
Option 3 ID : **37135169815**
Option 4 ID : **37135169816**
Status : **Marked For Review**
Chosen Option : **3**

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Q.32

The radii of the first four Bohr orbits of hydrogen atom are related as

Ans

✗ 1. $1:2:3:4$

✓ 2. $1:4:9:16$

✗ 3. $1:\frac{1}{2}:\frac{1}{3}:\frac{1}{4}$

✗ 4. $1:\frac{1}{4}:\frac{1}{9}:\frac{1}{16}$

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Question Type : **MCQ**
Question ID : **37135117451**
Option 1 ID : **37135169801**
Option 2 ID : **37135169802**
Option 3 ID : **37135169803**
Option 4 ID : **37135169804**
Status : **Answered**
Chosen Option : **2**

Q.33

For a ray of light, the critical angle is minimum when it travels from

Ans

✗ 1. air to glass.

✗ 2. glass to water.

✗ 3. water to glass.

✓ 4. glass to air.

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Question Type : **MCQ**
Question ID : **37135117498**
Option 1 ID : **37135169990**
Option 2 ID : **37135169991**
Option 3 ID : **37135169992**
Option 4 ID : **37135169989**
Status : **Answered**
Chosen Option : **4**

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Q.34

The correct statement about stationary wave is that

Ans

✔ 1.

displacement at node is zero and at antinode is maximum.

✘ 2.

displacement at node is maximum and at antinode is zero.

✘ 3.

displacement at node is maximum.

✘ 4.

displacement at antinode is minimum.

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Question Type : **MCQ**
Question ID : **37135117476**
Option 1 ID : **37135169903**
Option 2 ID : **37135169904**
Option 3 ID : **37135169901**
Option 4 ID : **37135169902**
Status : **Answered**
Chosen Option : **1**

Q.35

Out of the following units, the WRONG unit of magnetic dipole moment is

Ans

✘ 1. Nm^3 / Wb

✘ 2. Am^2

✔ 3. J - T

✘ 4. N m/T

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Question Type : **MCQ**
Question ID : **37135117463**
Option 1 ID : **37135169852**
Option 2 ID : **37135169850**
Option 3 ID : **37135169849**
Option 4 ID : **37135169851**
Status : **Answered**
Chosen Option : **3**

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Q.36

The earth is assumed to be a charged conducting sphere having volume 'V' and surface area 'A'. The capacitance of the earth in free space is

(ϵ_0 = permittivity of free space)

Ans

✔ 1. $12\pi\ \epsilon_0 \frac{V}{A}$

✘ 2. $4\pi\ \epsilon_0 \frac{V}{A}$

✘ 3. $2\pi\ \epsilon_0 \frac{V}{A}$

✘ 4. $8\pi\ \epsilon_0 \frac{V}{A}$

12

Question Type : **MCQ**
Question ID : **37135117482**
Option 1 ID : **37135169925**
Option 2 ID : **37135169927**
Option 3 ID : **37135169928**
Option 4 ID : **37135169926**
Status : **Marked For Review**
Chosen Option : **2**

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Q.37

A mass $2\sqrt{3}$ kg is acted upon by two forces which are inclined to each other at 60° and each of magnitude 1N. The acceleration of that mass in SI system is

[sin 30° = cos 60° = 0·5]

Ans

✗ 1. $0{\cdot}7\ m/s^2$

✗ 2. $0{\cdot}3\ m/s^2$

✗ 3. $0{\cdot}9\ m/s^2$

✓ 4. $0{\cdot}5\ m/s^2$

Question Type : **MCQ**
Question ID : **37135117468**
Option 1 ID : **37135169871**
Option 2 ID : **37135169869**
Option 3 ID : **37135169872**
Option 4 ID : **37135169870**
Status : **Answered**
Chosen Option : **4**

Q.38

Two incident radiations having energies two times and ten times of the work function of a metal surface, produce photoelectric effect. The ratio of maximum velocities of emitted photo electrons respectively is

Ans

✗ 1. 3:2

✓ 2. 1:3

✗ 3. 2:3

✗ 4. 1:2

Question Type : **MCQ**
Question ID : **37135117480**
Option 1 ID : **37135169920**
Option 2 ID : **37135169918**
Option 3 ID : **37135169919**
Option 4 ID : **37135169917**
Status : **Answered**
Chosen Option : **2**

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Q.39 A steel ring of radius 'r' is to be fitted over a wooden disc of radius 'R' (R > r). The force required to expand the ring so that it fits over the disc is

[Y = Young's modulus of steel, A = area of cross section of wire]

Ans

✔ 1. $YA\left(\frac{R-r}{r}\right)$

✘ 2. $YA\left(\frac{r}{R-r}\right)$

✘ 3. $YA\frac{r}{R}$

✘ 4. $\left(\frac{YAR}{r}\right)$

Question Type :	**MCQ**
Question ID :	**37135117472**
Option 1 ID :	**37135169885**
Option 2 ID :	**37135169887**
Option 3 ID :	**37135169888**
Option 4 ID :	**37135169886**
Status :	**Answered**
Chosen Option :	**1**

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Q.40 To obtain a magnified image at distance of distinct vision (DDV) using a simple microscope, the object should be placed

Ans

✔ 1. between the principal focus and optical centre of the lens.

✗ 2. at the principal focus.

✗ 3. slightly beyond the principal focus.

✗ 4. at the distance of distinct vision.

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Question Type :	**MCQ**
Question ID :	**37135117453**
Option 1 ID :	**37135169811**
Option 2 ID :	**37135169810**
Option 3 ID :	**37135169809**
Option 4 ID :	**37135169812**
Status :	**Marked For Review**
Chosen Option :	**3**

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Q.41

A straight horizontal conducting rod of length 'L' and mass 'M' is suspended by two vertical wires at its ends. If 'I' is the current passing through the rod, then in order that tension in the wire is zero, the magnetic field set up normal to the conductor is

(Neglect the mass of wire, g = acceleration due to gravity)

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Ans

✗ 1. $\frac{IL}{Mg}$

✗ 2. $\frac{Mg}{IL^2}$

✗ 3. $\frac{Mg}{I^2L}$

✓ 4. $\frac{Mg}{IL}$

Question Type : **MCQ**
Question ID : **37135117473**
Option 1 ID : **37135169892**
Option 2 ID : **37135169891**
Option 3 ID : **37135169889**
Option 4 ID : **37135169890**
Status : **Answered**
Chosen Option : **2**

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Q.42

When p-n junction diode is reverse biased, then the width of the barrier potential will

Ans

✔ 1.

increase and it will offer more resistance.

✗ 2.

decrease and it will offer zero resistance.

✗ 3.

remain constant and it will not offer resistance.

✗ 4.

decrease and it will offer more resistance.

19

Question Type : **MCQ**
Question ID : **37135117457**
Option 1 ID : **37135169826**
Option 2 ID : **37135169828**
Option 3 ID : **37135169827**
Option 4 ID : **37135169825**
Status : **Answered**
Chosen Option : **1**

Q.43

Three liquids have same surface tension and densities ϱ_1, ϱ_2, and ϱ_3 $(\varrho_1 > \varrho_2 > \varrho_3)$. In three identical capillaries, rise of liquid is same. The corresponding angles of contact θ_1, θ_2 and θ_3 are related as

Ans

✗ 1. $\theta_1 > \theta_2 > \theta_3$

✗ 2. $\theta_1 < \theta_2 > \theta_3$

✗ 3. $\theta_1 > \theta_2 < \theta_3$

✔ 4. $\theta_1 < \theta_2 < \theta_3$

6

Question Type : **MCQ**
Question ID : **37135117489**
Option 1 ID : **37135169953**
Option 2 ID : **37135169956**
Option 3 ID : **37135169954**
Option 4 ID : **37135169955**
Status : **Answered**
Chosen Option : **1**

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Q.44 The moment of inertia of a uniform square plate about an axis perpendicular to its plane and passing through the centre is $\frac{Ma^2}{6}$ where M is the mass and 'a' is the side of square plate. Moment of inertia of this plate about an axis perpendicular to its plane and passing through one of its corner is

Ans

✗ 1. $\frac{Ma^2}{3}$

✗ 2. $\frac{3}{Ma^2}$

✗ 3. $\frac{3Ma^2}{2}$

✓ 4. $\frac{2Ma^2}{3}$

3

Question Type : **MCQ**
Question ID : **37135117484**
Option 1 ID : **37135169934**
Option 2 ID : **37135169936**
Option 3 ID : **37135169935**
Option 4 ID : **37135169933**
Status : **Answered**
Chosen Option : **4**

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Q.45

A particle executes simple harmonic motion with amplitude 'A' and period 'T'. If it is half way between mean position and extreme position, then its speed at that point is

Ans

✗ 1. $\frac{3\pi A}{T}$

✗ 2. $\frac{\sqrt{3}\,\pi A}{2T}$

✗ 3. $\frac{\pi A}{T}$

✓ 4. $\frac{\sqrt{3}\,\pi A}{T}$

Question Type :	**MCQ**
Question ID :	**37135117494**
Option 1 ID :	**37135169973**
Option 2 ID :	**37135169976**
Option 3 ID :	**37135169975**
Option 4 ID :	**37135169974**
Status :	**Answered**
Chosen Option :	**4**

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Q.46 A body is projected vertically upwards from earth's surface. If velocity of projection is $(\frac{1}{3})^{rd}$ of escape velocity, then the height upto which a body rises is (R = radius of earth)

Ans

✗ 1. $2R$

✗ 2. $\frac{R}{4}$

✓ 3. $\frac{R}{2}$

✗ 4. R

2

Question Type : **MCQ**
Question ID : **37135117499**
Option 1 ID : **37135169996**
Option 2 ID : **37135169993**
Option 3 ID : **37135169994**
Option 4 ID : **37135169995**
Status : **Answered**
Chosen Option : **2**

Q.47 In a study of transistor as an amplifier, the ratio of collector current to emitter current is 0·98. The collector current is 3mA, then base current will be approximately

Ans

✗ 1. $6mA$

✗ 2. $60mA$

✗ 3. $6\mu A$

✓ 4. $60\mu A$

19

Question Type : **MCQ**
Question ID : **37135117485**
Option 1 ID : **37135169938**
Option 2 ID : **37135169940**
Option 3 ID : **37135169937**
Option 4 ID : **37135169939**
Status : **Answered**
Chosen Option : **4**

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Q.48 A body performs linear S.H.M. with amplitude 'a'. When it is at a distance $\frac{a}{3}$ from extreme position, the magnitude of velocity is $\frac{1}{3}$ times the magnitude of acceleration. The period of S.H.M. is

Ans

✗ 1. $\frac{3\pi}{2\sqrt{5}}$ s

✗ 2. $\frac{5\pi}{3\sqrt{5}}$ s

✓ 3. $\frac{2\pi}{3\sqrt{5}}$ s

✗ 4. $\frac{\pi}{3\sqrt{5}}$ s

Question Type : **MCQ**
Question ID : **37135117462**
Option 1 ID : **37135169847**
Option 2 ID : **37135169848**
Option 3 ID : **37135169845**
Option 4 ID : **37135169846**
Status : **Answered**
Chosen Option : **3**

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Q.49

A wire of Young's modulus $1{\cdot}6 \times 10^{12}$ N/m^2 is stretched by a force so as to produce a strain of 2×10^{-4}. The energy density of the wire is

Ans

✔ 1. $3{\cdot}2 \times 10^4$ J/m^3

✘ 2. $3{\cdot}2 \times 10^8$ J/m^3

✘ 3. $1{\cdot}6 \times 10^3$ J/m^3

✘ 4. $6{\cdot}4 \times 10^3$ J/m^3

Question Type : **MCQ**
Question ID : **37135117500**
Option 1 ID : **37135169998**
Option 2 ID : **37135169999**
Option 3 ID : **37135169997**
Option 4 ID : **37135170000**
Status : **Answered**
Chosen Option : **1**

Q.50

In Young's double slit experiment, the ratio of intensities at two points on a screen when waves from the two slits have a path difference of zero and $\frac{\lambda}{4}$ is

[$\cos 0° = \sin 90° = 1$, $\sin 0° = \cos 90° = 0$]

Ans

✔ 1. 2:1

✘ 2. 3:1

✘ 3. 2:3

✘ 4. 3:2

Question Type : **MCQ**
Question ID : **37135117496**
Option 1 ID : **37135169981**
Option 2 ID : **37135169982**
Option 3 ID : **37135169984**
Option 4 ID : **37135169983**
Status : **Answered**
Chosen Option : **1**

Section : **Chemistry**

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Q.1

Identify the inert gas used for filling balloons?

Ans

✗ 1. Krypton

✗ 2. Neon

✓ 3. Helium

✗ 4. Argon

Question Type : **MCQ**
Question ID : **37135117548**
Option 1 ID : **37135170192**
Option 2 ID : **37135170190**
Option 3 ID : **37135170189**
Option 4 ID : **37135170191**
Status : **Answered**
Chosen Option : **3**

Q.2

Which among the following is biodegradable polymer?

Ans

✓ 1. PHBV

✗ 2. Buna - N

✗ 3. PTFE

✗ 4. PVC

Question Type : **MCQ**
Question ID : **37135117512**
Option 1 ID : **37135170047**
Option 2 ID : **37135170045**
Option 3 ID : **37135170046**
Option 4 ID : **37135170048**
Status : **Answered**
Chosen Option : **1**

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Q.3

Conductivity of a conductor is

Ans

✗ 1. equal to resistivity

✗ 2. inverse of resistance

✗ 3. inverse of conductance

✓ 4. inverse of resistivity

Question Type : **MCQ**
Question ID : **37135117506**
Option 1 ID : **37135170024**
Option 2 ID : **37135170022**
Option 3 ID : **37135170021**
Option 4 ID : **37135170023**
Status : **Answered**
Chosen Option : **4**

Q.4

If radius of anion is double that of cation, coordination number of cation and type of hole occupied respectively are

Ans

✗ 1. 3, trigonal

✗ 2. 4, tetrahedral

✗ 3. 8, cubic

✓ 4. 6, octahedral

Question Type : **MCQ**
Question ID : **37135117546**
Option 1 ID : **37135170184**
Option 2 ID : **37135170183**
Option 3 ID : **37135170182**
Option 4 ID : **37135170181**
Status : **Answered**
Chosen Option : **2**

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Q.5

Which of the following is ferromagnetic in nature?

Ans

✗ 1. Oxygen

✓ 2. Gadolinium

✗ 3. Benzene

✗ 4. Water

Question Type : **MCQ**
Question ID : **37135117505**
Option 1 ID : **37135170017**
Option 2 ID : **37135170020**
Option 3 ID : **37135170018**
Option 4 ID : **37135170019**
Status : **Marked For Review**
Chosen Option : **2**

Q.6

Which products are obtained when methoxy ethane is heated with HI?

Ans

✓ 1. CH_3I and C_2H_5I

✗ 2. CH_3I and C_2H_5OH

✗ 3. CH_3OH and C_2H_5OH

✗ 4. C_2H_5I and CH_3OH

Question Type : **MCQ**
Question ID : **37135117508**
Option 1 ID : **37135170031**
Option 2 ID : **37135170029**
Option 3 ID : **37135170032**
Option 4 ID : **37135170030**
Status : **Answered**
Chosen Option : **2**

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Q.7

What is the oxidation number of Carbon in $K_2C_2O_4$?

Ans

✔ 1. $+3$

✘ 2. -2

✘ 3. 0

✘ 4. $+4$

Question Type : **MCQ**
Question ID : **37135117511**
Option 1 ID : **37135170042**
Option 2 ID : **37135170044**
Option 3 ID : **37135170041**
Option 4 ID : **37135170043**
Status : **Answered**
Chosen Option : **1**

Q.8

Which of the following compound is used as fire extinguisher?

Ans

✔ 1. $NaHCO_3$

✘ 2. Na_2CO_3

✘ 3. $NaOH$

✘ 4. Na_2SO_4

Question Type : **MCQ**
Question ID : **37135117532**
Option 1 ID : **37135170127**
Option 2 ID : **37135170125**
Option 3 ID : **37135170126**
Option 4 ID : **37135170128**
Status : **Answered**
Chosen Option : **3**

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Q.9 Which of the following molecules contain 25 % S character of carbon atom in hybrid state?

Ans

✗ 1. Ethylene

✗ 2. Acetylene

✓ 3. Methane

✗ 4. Benzene

Question Type : **MCQ**
Question ID : **37135117521**
Option 1 ID : **37135170083**
Option 2 ID : **37135170081**
Option 3 ID : **37135170082**
Option 4 ID : **37135170084**
Status : **Answered**
Chosen Option : **3**

Q.10 Which of the following is NOT an example of freons?

Ans

✗ 1. Dichloro difluoromethane

✓ 2. Diphenyl

✗ 3. Trichloro fluoromethane

✗ 4. Chloro difluoromethane

Question Type : **MCQ**
Question ID : **37135117537**
Option 1 ID : **37135170145**
Option 2 ID : **37135170148**
Option 3 ID : **37135170146**
Option 4 ID : **37135170147**
Status : **Marked For Review**
Chosen Option : **2**

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Q.11 34.2g sugar dissolved in $1 \cdot 8 \times 10^2$g water to from sugar syrup, calculate mole fraction of sugar? (Molar mass sugar = 342, water =18)

Ans

✔ 1. $0 \cdot 009$

✘ 2. $0 \cdot 001$

✘ 3. $0 \cdot 1$

✘ 4. $0 \cdot 9$

Question Type : **MCQ**
Question ID : **37135117541**
Option 1 ID : **37135170163**
Option 2 ID : **37135170164**
Option 3 ID : **37135170162**
Option 4 ID : **37135170161**
Status : **Answered**
Chosen Option : **1**

Q.12 For the reaction

$2NOBr_{(g)} \rightarrow 2NO_{(g)} + Br_{2_{(g)}}$, rate law is $r = K\,[NOBr]^2$.

If rate constant is $1 \cdot 62 M^{-1}s^{-1}$ and concentration of NOBr is $2 \cdot 00 \times 10^{-3}$M, What is the rate of reaction?

Ans

✔ 1. $6 \cdot 48 \times 10^{-6} Ms^{-1}$

✘ 2. $4 \cdot 05 \times 10^{-5} Ms^{-1}$

✘ 3. $2 \cdot 46 \times 10^{-6} Ms^{-1}$

✘ 4. $5 \cdot 24 \times 10^{-6} Ms^{-1}$

Question Type : **MCQ**
Question ID : **37135117530**
Option 1 ID : **37135170119**
Option 2 ID : **37135170118**
Option 3 ID : **37135170117**
Option 4 ID : **37135170120**
Status : **Answered**
Chosen Option : **1**

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Q.13 E°cell is 1 · 049 V and involves transfer of 2 electrons, calculate equilibrium constant of cell?

Ans

✔ 1. $2\text{-}75 \times 10^{35}$

✗ 2. $2\text{-}75 \times 10^{10}$

✗ 3. $0 \cdot 524 \times 10^{35}$

✗ 4. $2 \cdot 098 \times 10^{10}$

Question Type : **MCQ**
Question ID : **37135117535**
Option 1 ID : **37135170140**
Option 2 ID : **37135170139**
Option 3 ID : **37135170138**
Option 4 ID : **37135170137**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.14 Identify the alcohol that react immediately with Lucas reagent?

Ans

✗ 1. Ethanol

✗ 2. Butan-2-ol

✔ 3. 2-Methyl Propan-2-ol

✗ 4. Propan-2-ol

Question Type : **MCQ**
Question ID : **37135117518**
Option 1 ID : **37135170072**
Option 2 ID : **37135170070**
Option 3 ID : **37135170071**
Option 4 ID : **37135170069**
Status : **Answered**
Chosen Option : **3**

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Q.15 $2 \cdot 5$ kJ of work is done on the system and it releases 1500 J of heat. What is the change in internal energy?

Ans

✔ 1. 1000 J

✘ 2. 4000 J

✘ 3. 2500 J

✘ 4. 1500 J

Question Type : **MCQ**
Question ID : **37135117545**
Option 1 ID : **37135170178**
Option 2 ID : **37135170177**
Option 3 ID : **37135170180**
Option 4 ID : **37135170179**
Status : **Answered**
Chosen Option : **2**

Q.16 Identify the correct decreasing order of reactivity of alkyl halide with ammonia?

Ans

✔ 1. $R-I > R-Br > R-Cl$

✘ 2. $R-Br > R-Cl > R-I$

✘ 3. $R-I > R-Cl > R-Br$

✘ 4. $R-Cl > R-Br > R-I$

Question Type : **MCQ**
Question ID : **37135117516**
Option 1 ID : **37135170063**
Option 2 ID : **37135170064**
Option 3 ID : **37135170062**
Option 4 ID : **37135170061**
Status : **Marked For Review**
Chosen Option : **1**

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Q.17 Mixture of sodium chloride and ammonium chloride is separated by

Ans

✔ 1. sublimation

✗ 2. distillation

✗ 3. chromatography

✗ 4. differential extraction

Question Type : **MCQ**
Question ID : **37135117538**
Option 1 ID : **37135170149**
Option 2 ID : **37135170150**
Option 3 ID : **37135170151**
Option 4 ID : **37135170152**
Status : **Marked For Review**
Chosen Option : **1**

Q.18 Which among the following is basic amino acid?

Ans

✔ 1. Lysine

✗ 2. Glycine

✗ 3. Cystine

✗ 4. Cysteine

Question Type : **MCQ**
Question ID : **37135117502**
Option 1 ID : **37135170005**
Option 2 ID : **37135170006**
Option 3 ID : **37135170007**
Option 4 ID : **37135170008**
Status : **Marked For Review**
Chosen Option : **1**

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Q.19

What is the molarity of solution containing $0 \cdot 8$ g of NaOH (Molar mass 40 g mol^{-1}) in 150 cm^3 of water?

Ans

✗ 1. $0 \cdot 02$ mol dm^{-3}

✗ 2. $0 \cdot 12$ mol dm^{-3}

✗ 3. $5 \cdot 33$ mol dm^{-3}

✓ 4. $0 \cdot 1333$ mol dm^{-3}

Question Type : **MCQ**
Question ID : **37135117510**
Option 1 ID : **37135170037**
Option 2 ID : **37135170039**
Option 3 ID : **37135170040**
Option 4 ID : **37135170038**
Status : **Answered**
Chosen Option : **4**

Q.20

Identify 'A' in the following reaction

$$\text{Salicylic acid} \xrightarrow{\text{Acetic anthydride}} \text{A}$$

Ans

✓ 1. Aspirin

✗ 2. Methyl salicylate

✗ 3. BHT

✗ 4. Steric acid

Question Type : **MCQ**
Question ID : **37135117522**
Option 1 ID : **37135170087**
Option 2 ID : **37135170086**
Option 3 ID : **37135170088**
Option 4 ID : **37135170085**
Status : **Answered**
Chosen Option : **1**

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Q.21

Which inert gas is used in chromatography?

Ans

✔ 1. Ar

✘ 2. Ne

✘ 3. Kr

✘ 4. He

Question Type : **MCQ**
Question ID : **37135117543**
Option 1 ID : **37135170171**
Option 2 ID : **37135170170**
Option 3 ID : **37135170172**
Option 4 ID : **37135170169**
Status : **Marked For Review**
Chosen Option : **1**

Q.22

How many chlorine atoms are present in a molecule of D.D.T.?

Ans

✘ 1. 3

✔ 2. 5

✘ 3. 2

✘ 4. 4

Question Type : **MCQ**
Question ID : **37135117547**
Option 1 ID : **37135170186**
Option 2 ID : **37135170188**
Option 3 ID : **37135170185**
Option 4 ID : **37135170187**
Status : **Answered**
Chosen Option : **2**

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Q.23

Which of the following haloalkane is used as paint remover?

Ans

✗ 1. Carbon tetra chloride

✓ 2. Dichloromethane

✗ 3. Chloroethane

✗ 4. Trichloromethane

Question Type : **MCQ**
Question ID : **37135117504**
Option 1 ID : **37135170016**
Option 2 ID : **37135170014**
Option 3 ID : **37135170013**
Option 4 ID : **37135170015**
Status : **Marked For Review**
Chosen Option : **4**

Q.24

Which of the following pairs of inert gases is used in flash bulb?

Ans

✗ 1. Xe and He

✓ 2. Xe and Kr

✗ 3. Xe and Rn

✗ 4. Xe and Ar

Question Type : **MCQ**
Question ID : **37135117509**
Option 1 ID : **37135170035**
Option 2 ID : **37135170034**
Option 3 ID : **37135170033**
Option 4 ID : **37135170036**
Status : **Marked For Review**
Chosen Option : **2**

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Q.25 Which among the following is used as a monomer for the preparation of neoprene?

Ans

✗ 1. Isoprene

✗ 2. Glycine

✓ 3. Chloroprene

✗ 4. Styrene

Question Type : **MCQ**
Question ID : **37135117519**
Option 1 ID : **37135170074**
Option 2 ID : **37135170076**
Option 3 ID : **37135170073**
Option 4 ID : **37135170075**
Status : **Answered**
Chosen Option : **3**

Q.26 Molal elevation constant is the elevation in boiling point produced by

Ans ✗ 1.

1 mole of solute in one litre of solvent

✗ 2. 1g of solute in 100g of solvent

✗ 3.

100g of solute in 1000g of solvent

✓ 4.

1 mole of solute in one Kg of solvent

Question Type : **MCQ**
Question ID : **37135117517**
Option 1 ID : **37135170067**
Option 2 ID : **37135170065**
Option 3 ID : **37135170066**
Option 4 ID : **37135170068**
Status : **Answered**
Chosen Option : **4**

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Q.27 How many gram of dihydrogen is required to react with dinitrogen to produce 34g of ammonia?

Ans

✔ 1. 6 g

✘ 2. 2 g

✘ 3. 12 g

✘ 4. 3 g

Question Type : **MCQ**
Question ID : **37135117529**
Option 1 ID : **37135170115**
Option 2 ID : **37135170113**
Option 3 ID : **37135170116**
Option 4 ID : **37135170114**
Status : **Marked For Review**
Chosen Option : **1**

Q.28 The symbol used for hydrogen in Dalton's atomic theory is

Ans

✘ 1. ⊕

✘ 2. ○

✔ 3. ⊙

✘ 4. ◐

Question Type : **MCQ**
Question ID : **37135117503**
Option 1 ID : **37135170010**
Option 2 ID : **37135170009**
Option 3 ID : **37135170012**
Option 4 ID : **37135170011**
Status : **Answered**
Chosen Option : **1**

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Q.29

Which among the following is a mineral of copper?

Ans

✗ 1. Carnotite

✓ 2. Azurite

✗ 3. Pyrolusite

✗ 4. Chromite

Question Type : **MCQ**
Question ID : **37135117534**
Option 1 ID : **37135170135**
Option 2 ID : **37135170133**
Option 3 ID : **37135170134**
Option 4 ID : **37135170136**
Status : **Answered**
Chosen Option : **3**

Q.30

An ideal gas expands isothermally and reversibly from 10 m^3 to 20 m^3 at 300K performing 5·187kJ of work on surrrounding. Calculate number of moles of gas undergoing expansion? ($R = 8 \cdot 314\ JK^{-1}mol^{-1}$)

Ans

✗ 1. 1·5

✗ 2. 2

✓ 3. 3

✗ 4. 1

Question Type : **MCQ**
Question ID : **37135117526**
Option 1 ID : **37135170102**
Option 2 ID : **37135170103**
Option 3 ID : **37135170104**
Option 4 ID : **37135170101**
Status : **Marked For Review**
Chosen Option : **3**

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Q.31 The reaction in which methyl group on benzene ring is converted to aldehydic group is called

Ans

✔ 1. Etard reaction

✘ 2. Fridel – Craft reaction

✘ 3. Rosenmund reaction

✘ 4. Gatterman – Koch reaction

Question Type : **MCQ**
Question ID : **37135117544**
Option 1 ID : **37135170173**
Option 2 ID : **37135170176**
Option 3 ID : **37135170174**
Option 4 ID : **37135170175**
Status : **Answered**
Chosen Option : **4**

Q.32 Which of the following magnetic impurity is present in Cassiterite ore?

Ans

✘ 1. Fe_2O_3

✔ 2. $FeWO_4$

✘ 3. FeO

✘ 4. Fe_3O_4

Question Type : **MCQ**
Question ID : **37135117524**
Option 1 ID : **37135170094**
Option 2 ID : **37135170096**
Option 3 ID : **37135170093**
Option 4 ID : **37135170095**
Status : **Answered**
Chosen Option : **2**

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Q.33

Which of the following amines forms a clear solution when treated with benzene sulphonyl chloride and excess of potassium hydroxide?

Ans

✗ 1. $(CH_3)_3\ N$

✗ 2. $(CH_3)_2\ NC_2H_5$

✗ 3. $(CH_3)_2\ NH$

✓ 4. CH_3NH_2

Question Type : **MCQ**
Question ID : **37135117533**
Option 1 ID : **37135170130**
Option 2 ID : **37135170131**
Option 3 ID : **37135170129**
Option 4 ID : **37135170132**
Status : **Answered**
Chosen Option : **4**

Q.34

On hydrolysis sucrose gives

Ans

✗ 1. 2 moles of glucose

✗ 2. 2 moles of galactose

✓ 3. equimolar mixture of glucose and fructose

✗ 4. 2 moles of fructose

Question Type : **MCQ**
Question ID : **37135117549**
Option 1 ID : **37135170193**
Option 2 ID : **37135170196**
Option 3 ID : **37135170194**
Option 4 ID : **37135170195**
Status : **Answered**
Chosen Option : **3**

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Q.35 How many primary, secondary and tertiary carbon atoms repsectively are present in isobutane?

Ans

✗ 1. 0, 1 and 3

✗ 2. 3, 1 and 0

✓ 3. 3, 0 and 1

✗ 4. 1, 0 and 3

Question Type : **MCQ**
Question ID : **37135117542**
Option 1 ID : **37135170168**
Option 2 ID : **37135170167**
Option 3 ID : **37135170165**
Option 4 ID : **37135170166**
Status : **Answered**
Chosen Option : **3**

Q.36 What is the bond order of Be_2 molecule?

Ans

✗ 1. 2

✗ 2. 3

✓ 3. 0

✗ 4. 1

Question Type : **MCQ**
Question ID : **37135117515**
Option 1 ID : **37135170059**
Option 2 ID : **37135170060**
Option 3 ID : **37135170058**
Option 4 ID : **37135170057**
Status : **Marked For Review**
Chosen Option : **1**

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Q.37 Which of the following compounds is formed when tungsten adsorbs oxygen gas?

Ans

✗ 1. Tungsten dioxide

✗ 2. Tungsten oxide

✗ 3. Tungsten tetraoxide

✓ 4. Tungsten trioxide

Question Type : **MCQ**
Question ID : **37135117520**
Option 1 ID : **37135170078**
Option 2 ID : **37135170077**
Option 3 ID : **37135170080**
Option 4 ID : **37135170079**
Status : **Marked For Review**
Chosen Option : **1**

Q.38 Which among the following elements possesses one electron in 4s orbital in observed electronic configaration?

Ans

✗ 1. V (Z =23)

✗ 2. Ni (Z =28)

✗ 3. Mn (Z =25)

✓ 4. Cu (Z =29)

Question Type : **MCQ**
Question ID : **37135117501**
Option 1 ID : **37135170001**
Option 2 ID : **37135170003**
Option 3 ID : **37135170002**
Option 4 ID : **37135170004**
Status : **Answered**
Chosen Option : **4**

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Q.39 Consider the reaction $2A + 2B \rightarrow C + 2D$. If the concentration of A is doubled at constant B, the rate increases by a factor 4. If the concentration of B is doubled at constant A, rate is doubled. What is the rate law?

Ans

✗ 1. $r=k\,[A]^2[B]^2$

✗ 2. $r=k\,[A]^4[B]^2$

✗ 3. $r=k\,[A][B]^2$

✓ 4. $r=k\,[A]^2[B]$

Question Type : **MCQ**
Question ID : **37135117525**
Option 1 ID : **37135170098**
Option 2 ID : **37135170097**
Option 3 ID : **37135170100**
Option 4 ID : **37135170099**
Status : **Answered**
Chosen Option : **4**

Q.40 Which of the following catalyst is used in Rosenmund reaction?

Ans

✗ 1. Cu_2Cl_2

✗ 2. CS_2

✓ 3. $Pd - BaSO_4$

✗ 4. V_2O_5

Question Type : **MCQ**
Question ID : **37135117513**
Option 1 ID : **37135170052**
Option 2 ID : **37135170049**
Option 3 ID : **37135170050**
Option 4 ID : **37135170051**
Status : **Answered**
Chosen Option : **2**

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Q.41 If radius ratio for an ionic solid is $0 \cdot 5248$ and radius of cation is $0 \cdot 95$ A°. What is the radius of anion?

Ans

✗ 1. $1 \cdot 45$ A°

✓ 2. $1 \cdot 81$ A°

✗ 3. $1 \cdot 20$ A°

✗ 4. $1 \cdot 60$ A°

Question Type : **MCQ**
Question ID : **37135117550**
Option 1 ID : **37135170198**
Option 2 ID : **37135170197**
Option 3 ID : **37135170200**
Option 4 ID : **37135170199**
Status : **Answered**
Chosen Option : **2**

Q.42 Which among the following drugs is NOT a tranquilizer?

Ans

✗ 1. Equanil

✓ 2. Novestrol

✗ 3. Valium

✗ 4. Veronal

Question Type : **MCQ**
Question ID : **37135117531**
Option 1 ID : **37135170123**
Option 2 ID : **37135170124**
Option 3 ID : **37135170122**
Option 4 ID : **37135170121**
Status : **Answered**
Chosen Option : **2**

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Q.43 What is the final product obtained when benzonitrile react with phenyl megnesium bromide in equimolar proportion?

Ans

✗ 1. Diphenyl magnesium bromide

✗ 2. Benzene

✗ 3. Dicyclohexane

✓ 4. Benzophenone

Question Type : **MCQ**
Question ID : **37135117527**
Option 1 ID : **37135170105**
Option 2 ID : **37135170106**
Option 3 ID : **37135170108**
Option 4 ID : **37135170107**
Status : **Answered**
Chosen Option : **4**

Q.44 Identify the type of intermolecular force present between benzene and ammonia

Ans

✗ 1. Hydrogen bonding

✗ 2. Dipole – dipole interaction

✓ 3. Dipole - induced dipole interaction

✗ 4. Ion- dipole interaction

Question Type : **MCQ**
Question ID : **37135117507**
Option 1 ID : **37135170028**
Option 2 ID : **37135170027**
Option 3 ID : **37135170026**
Option 4 ID : **37135170025**
Status : **Marked For Review**
Chosen Option : **1**

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Q.45 Identify the product formed when bauxite ore is treated with sodium hydroxide?

Ans

✗ 1. Sodium hydrogen carbonate

✗ 2. Aluminium hydroxide

✓ 3. Sodium meta aluminate

✗ 4. Aluminium chloride

Question Type : **MCQ**
Question ID : **37135117539**
Option 1 ID : **37135170154**
Option 2 ID : **37135170155**
Option 3 ID : **37135170156**
Option 4 ID : **37135170153**
Status : **Marked For Review**
Chosen Option : **2**

Q.46 Which of the following is NOT a dihydric phenol?

Ans

✗ 1. Quinol

✗ 2. Resorcinol

✗ 3. Catechol

✓ 4. Hydroxyquinol

Question Type : **MCQ**
Question ID : **37135117523**
Option 1 ID : **37135170090**
Option 2 ID : **37135170091**
Option 3 ID : **37135170092**
Option 4 ID : **37135170089**
Status : **Answered**
Chosen Option : **4**

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Q.47 Which of the following type of amines is obtained by alkylation of phthalimide?

Ans

✗ 1. $Ar - NH_2$

✓ 2. $R - NH_2$

✗ 3. $(R)_3N$

✗ 4. $R - NH - R$

Question Type : **MCQ**
Question ID : **37135117540**
Option 1 ID : **37135170160**
Option 2 ID : **37135170157**
Option 3 ID : **37135170159**
Option 4 ID : **37135170158**
Status : **Answered**
Chosen Option : **2**

Q.48 How many donor groups are present in diethylene triamine?

Ans

✗ 1. 4

✗ 2. 2

✗ 3. 6

✓ 4. 3

Question Type : **MCQ**
Question ID : **37135117528**
Option 1 ID : **37135170111**
Option 2 ID : **37135170109**
Option 3 ID : **37135170112**
Option 4 ID : **37135170110**
Status : **Marked For Review**
Chosen Option : **4**

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Q.49

What is EAN of Cobalt in $[Co(NH_3)_6]Cl_3$ (At. No. of Co = 27)

Ans

✗ 1. 30

✗ 2. 28

✗ 3. 27

✓ 4. 36

Question Type : **MCQ**
Question ID : **37135117514**
Option 1 ID : **37135170056**
Option 2 ID : **37135170053**
Option 3 ID : **37135170054**
Option 4 ID : **37135170055**
Status : **Answered**
Chosen Option : **4**

Q.50

When will be the reaction becomes spontaneous at all temperatures?

Ans

✗ 1. $\Delta H = -ve, \quad \Delta S = -ve, \quad \Delta G = -ve$

✓ 2. $\Delta H = -ve, \quad \Delta S = +ve, \quad \Delta G = -ve$

✗ 3. $\Delta H = +ve, \quad \Delta S = +ve, \quad \Delta G = -ve$

✗ 4. $\Delta H = +ve, \quad \Delta S = -ve, \quad \Delta G = +ve$

Question Type : **MCQ**
Question ID : **37135117536**
Option 1 ID : **37135170142**
Option 2 ID : **37135170141**
Option 3 ID : **37135170143**
Option 4 ID : **37135170144**
Status : **Answered**
Chosen Option : **2**

Section : **Mathematics**

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Q.1

If A and B are subsets of universal set X such that $n(X)=200$, $n(A)=90$, $n(B)=80$, $n(A' \cap B')=40$, then $n(A \cap B') =$

Ans

✗ 1. 70

✓ 2. 80

✗ 3. 20

✗ 4. 10

Question Type : **MCQ**
Question ID : **37135117566**
Option 1 ID : **37135170263**
Option 2 ID : **37135170264**
Option 3 ID : **37135170262**
Option 4 ID : **37135170261**
Status : **Answered**
Chosen Option : **2**

Q.2

The integrating factor of the differential equation $\frac{dy}{dx}(x\ logx) + y = 4\ logx$ is

Ans

✗ 1. $log\ (logx)$

✗ 2. x

✗ 3. e^x

✓ 4. $logx$

Question Type : **MCQ**
Question ID : **37135117570**
Option 1 ID : **37135170279**
Option 2 ID : **37135170280**
Option 3 ID : **37135170277**
Option 4 ID : **37135170278**
Status : **Answered**
Chosen Option : **4**

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Q.3

If P is a point on the segment AB of length 12cm, then the position of P for $AP^2 + BP^2$ to be minimum is such that

Ans

✗ 1. P divides AB in the ratio 2:3 internally

✗ 2. P divides AB in the ratio 4:3 internally

✓ 3. P is the midpoint of segment AB

✗ 4. P divides BA in the ratio 2:1 internally

Question Type : **MCQ**
Question ID : **37135117585**
Option 1 ID : **37135170337**
Option 2 ID : **37135170338**
Option 3 ID : **37135170340**
Option 4 ID : **37135170339**
Status : **Not Answered**
Chosen Option : **--**

Q.4

If the origin and the points $(1, 2, 3)$, $(2, 3, 4)$ and (x, y, z) are coplanar, then

Ans

✓ 1. $x - 2y + z = 0$

✗ 2. $x + y + z = 6$

✗ 3. $x - 2y + z + 1 = 0$

✗ 4. $z - 2x + y = 0$

Question Type : **MCQ**
Question ID : **37135117569**
Option 1 ID : **37135170274**
Option 2 ID : **37135170276**
Option 3 ID : **37135170273**
Option 4 ID : **37135170275**
Status : **Answered**
Chosen Option : **1**

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Q.5 The probability distribution of a random variable X is given by

$X = x$	0	1	2
$P(X = x)$	$\frac{1}{5}$	$\frac{2}{5}$	$\frac{2}{5}$

then the variance of X is

Ans

✔ 1. $\frac{14}{25}$

✘ 2. $\frac{9}{25}$

✘ 3. $\frac{6}{25}$

✘ 4. $\frac{1}{25}$

Question Type : **MCQ**
Question ID : **37135117558**
Option 1 ID : **37135170231**
Option 2 ID : **37135170230**
Option 3 ID : **37135170229**
Option 4 ID : **37135170232**
Status : **Answered**
Chosen Option : **1**

Q.6 The equation of a plane containing the line $x - 2 = \frac{y-4}{4} = \frac{z-6}{7}$ and parallel to the line $\vec{r} = (\hat{i} + 3\hat{j} + 5\hat{k}) + \lambda(3\hat{i} + 5\hat{j} + 7\hat{k})$ is

Ans

✘ 1. $x - 2y + z = 10$

✘ 2. $3x - 2y + z = 4$

✘ 3. $x - 2y + z = 9$

✔ 4. $x - 2y + z = 0$

Question Type : **MCQ**
Question ID : **37135117589**
Option 1 ID : **37135170355**
Option 2 ID : **37135170353**
Option 3 ID : **37135170356**
Option 4 ID : **37135170354**
Status : **Answered**
Chosen Option : **4**

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Q.7 It is known that a box of 8 batteries contains 3 defective pieces and a person randomly selects two batteries from the box. If X is the number of defective batteries selected, then $P(X \leq 1) =$

Ans

✔ 1. $\frac{25}{28}$

✗ 2. $\frac{14}{28}$

✗ 3. $\frac{10}{28}$

✗ 4. $\frac{13}{28}$

Question Type : **MCQ**
Question ID : **37135117560**
Option 1 ID : **37135170240**
Option 2 ID : **37135170239**
Option 3 ID : **37135170237**
Option 4 ID : **37135170238**
Status : **Answered**
Chosen Option : **1**

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Q.8

If $y = log\left[a^{3x}\left(\frac{5-x}{x+4}\right)^{\frac{3}{4}}\right]$, then $\frac{dy}{dx} =$

Ans

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

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

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

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

Question Type : **MCQ**
Question ID : **37135117596**
Option 1 ID : **37135170383**
Option 2 ID : **37135170381**
Option 3 ID : **37135170384**
Option 4 ID : **37135170382**
Status : **Answered**
Chosen Option : **4**

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Q.9

The position vector of the point of intersection of the line

$\bar{r} = (2\hat{\imath} + \hat{\jmath} - 4\hat{k}) + \lambda(\hat{\imath} - 2\hat{\jmath} + 2\hat{k})$ and XOY- Plane is

Ans

✗ 1. $4\hat{\imath} + 3\hat{k}$

✗ 2. $4\hat{\imath} + 3\hat{\jmath}$

✗ 3. $4\hat{\imath} - 3\hat{k}$

✓ 4. $4\hat{\imath} - 3\hat{\jmath}$

Question Type : **MCQ**
Question ID : **37135117582**
Option 1 ID : **37135170326**
Option 2 ID : **37135170325**
Option 3 ID : **37135170328**
Option 4 ID : **37135170327**
Status : **Marked For Review**
Chosen Option : **4**

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Q.10

If $A = \begin{bmatrix} 2 & -3 \\ 5 & -7 \end{bmatrix}$, then $2A - 3A^{-1} =$

Ans

✗ 1. $\begin{bmatrix} 25 & 15 \\ 25 & 20 \end{bmatrix}$

✗ 2. $\begin{bmatrix} 25 & 25 \\ -15 & -20 \end{bmatrix}$

✓ 3. $\begin{bmatrix} 25 & -15 \\ 25 & -20 \end{bmatrix}$

✗ 4. $\begin{bmatrix} 25 & -25 \\ -15 & -20 \end{bmatrix}$

Question Type : **MCQ**
Question ID : **37135117552**
Option 1 ID : **37135170206**
Option 2 ID : **37135170207**
Option 3 ID : **37135170205**
Option 4 ID : **37135170208**
Status : **Answered**
Chosen Option : **3**

Q.11

The logical expression $[p \wedge (q \vee r)] \vee [(\sim p \wedge q) \vee (\sim p \wedge r)]$ is equivalent to

Ans

✗ 1. p

✗ 2. q

✗ 3. $p \wedge r$

✓ 4. $q \vee r$

Question Type : **MCQ**
Question ID : **37135117583**
Option 1 ID : **37135170329**
Option 2 ID : **37135170330**
Option 3 ID : **37135170331**
Option 4 ID : **37135170332**
Status : **Answered**
Chosen Option : **4**

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Q.12

$$\int_0^4 |x-2| \quad dx =$$

Ans

1. 0 ✗
2. 4 ✓
3. 8 ✗
4. 2 ✗

Question Type : **MCQ**
Question ID : **37135117563**
Option 1 ID : **37135170251**
Option 2 ID : **37135170250**
Option 3 ID : **37135170249**
Option 4 ID : **37135170252**
Status : **Answered**
Chosen Option : **2**

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Q.13 If p_1 and p_2 are the lengths of perendiculars from the origin to the lines $x\,sin\theta + y\,cos\theta = 5\;cos2\theta$ and $x\,cosec\theta + y\,sec\theta - 5 = 0$ respectively, then $p_1^2 + 4p_2^2 =$

Ans

✗ 1. $\frac{1}{25}$

✗ 2. $\frac{1}{5}$

✓ 3. 25

✗ 4. 5

Question Type : **MCQ**
Question ID : **37135117586**
Option 1 ID : **37135170343**
Option 2 ID : **37135170344**
Option 3 ID : **37135170341**
Option 4 ID : **37135170342**
Status : **Answered**
Chosen Option : **3**

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Q.14

If A and B are two independent events and $P(A) = \frac{3}{5}$, $P(B) = \frac{2}{3}$, then $P(A' \cap B') =$

Ans

1. ✗ $\frac{7}{15}$

2. ✓ $\frac{2}{15}$

3. ✗ $\frac{4}{15}$

4. ✗ $\frac{1}{15}$

Question Type : **MCQ**
Question ID : **37135117581**
Option 1 ID : **37135170324**
Option 2 ID : **37135170322**
Option 3 ID : **37135170323**
Option 4 ID : **37135170321**
Status : **Answered**
Chosen Option : **2**

Q.15

The population of a village increases at a rate proportional to the population at that time. In a period of 10 years the population grew from 20,000 to 40,000, then the population after another 20 years is

Ans

1. ✗ 1,20,000

2. ✓ 1,60,000

3. ✗ 1,00,000

4. ✗ 80,000

Question Type : **MCQ**
Question ID : **37135117572**
Option 1 ID : **37135170287**
Option 2 ID : **37135170288**
Option 3 ID : **37135170286**
Option 4 ID : **37135170285**
Status : **Answered**
Chosen Option : **2**

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Q.16 Bismath has half life of 5 days. If sample originally has a mass of 800 mg. then the mass remaining after 30 days will be

Ans

✗ 1. 10 mg.

✗ 2. 10.5 mg.

✗ 3. 12 mg.

✓ 4. 12.5 mg.

Question Type : **MCQ**
Question ID : **37135117553**
Option 1 ID : **37135170212**
Option 2 ID : **37135170209**
Option 3 ID : **37135170211**
Option 4 ID : **37135170210**
Status : **Answered**
Chosen Option : **4**

Q.17 $\frac{sinA + sin7A + sin13A}{cosA + cos7A + cos13A} =$

Ans

✗ 1. $cot7A$

✗ 2. $tan6A$

✓ 3. $tan7A$

✗ 4. $cot6A$

Question Type : **MCQ**
Question ID : **37135117559**
Option 1 ID : **37135170234**
Option 2 ID : **37135170235**
Option 3 ID : **37135170233**
Option 4 ID : **37135170236**
Status : **Answered**
Chosen Option : **3**

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Q.18

The joint equation of pair of lines through the origin and making equilateral triangle with the line $y = 4$ is

Ans

✗ 1. $3x^2 + y^2 = 0$

✓ 2. $3x^2 - y^2 = 0$

✗ 3. $x^2 - y^2 = 0$

✗ 4. $x^2 - 3y^2 = 0$

Question Type : **MCQ**
Question ID : **37135117587**
Option 1 ID : **37135170348**
Option 2 ID : **37135170346**
Option 3 ID : **37135170345**
Option 4 ID : **37135170347**
Status : **Answered**
Chosen Option : **2**

Q.19

If $tan^{-1}x + tan^{-1}y + tan^{-1}z = \frac{\pi}{2}$, $x, y, z > 0$, $xy < 1$, then the value of $xy + yz + zx =$

Ans

✗ 1. $x\,y\,z$

✗ 2. 0

✓ 3. 1

✗ 4. $-x\,y\,z$

Question Type : **MCQ**
Question ID : **37135117554**
Option 1 ID : **37135170215**
Option 2 ID : **37135170214**
Option 3 ID : **37135170213**
Option 4 ID : **37135170216**
Status : **Answered**
Chosen Option : **3**

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Q.20

The co-efficient of x^6 in the series of e^{2x} is

Ans

✗ 1. $\frac{2}{45}$

✗ 2. $\frac{7}{45}$

✓ 3. $\frac{4}{45}$

✗ 4. $\frac{1}{45}$

Question Type : **MCQ**
Question ID : **37135117575**
Option 1 ID : **37135170298**
Option 2 ID : **37135170300**
Option 3 ID : **37135170299**
Option 4 ID : **37135170297**
Status : **Answered**
Chosen Option : **3**

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Q.21

If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and X is a 2×2 matrix such that $AX = I$, then $X =$

Ans

✗ 1. $\begin{bmatrix} -2 & 1 \\ \frac{3}{2} & \frac{1}{2} \end{bmatrix}$

✗ 2. $\begin{bmatrix} 2 & 1 \\ \frac{3}{2} & -\frac{1}{2} \end{bmatrix}$

✗ 3. $\begin{bmatrix} -2 & 1 \\ -\frac{3}{2} & -\frac{1}{2} \end{bmatrix}$

✓ 4. $\begin{bmatrix} -2 & 1 \\ \frac{3}{2} & -\frac{1}{2} \end{bmatrix}$

Question Type : **MCQ**
Question ID : **37135117561**
Option 1 ID : **37135170244**
Option 2 ID : **37135170242**
Option 3 ID : **37135170243**
Option 4 ID : **37135170241**
Status : **Answered**
Chosen Option : **4**

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Q.22

A line makes an angle of 45° with x-axis and congruent angles with y and z-axes ,

then the direction cosines of the line are

Ans

✗ 1.

$\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}$ and $-\frac{1}{\sqrt{2}}, -\frac{1}{\sqrt{2}}, -\frac{1}{\sqrt{2}}$

✗ 2.

$\frac{1}{2}, \frac{1}{2}, \frac{1}{2}$ and $-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}$

✗ 3.

$\frac{1}{\sqrt{2}}, \frac{1}{2}, \frac{1}{2}$ and $-\frac{1}{\sqrt{2}}, -\frac{1}{2}, -\frac{1}{2}$

✓ 4.

$\frac{1}{\sqrt{2}}, \frac{1}{2}, \frac{1}{2}$ and $\frac{1}{\sqrt{2}}, -\frac{1}{2}, -\frac{1}{2}$

Question Type : **MCQ**
Question ID : **37135117578**
Option 1 ID : **37135170310**
Option 2 ID : **37135170309**
Option 3 ID : **37135170311**
Option 4 ID : **37135170312**
Status : **Answered**
Chosen Option : **4**

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Q.23

The area bonded by the curve $y = \sin^2 x$, x-axis and the lines $x = 0$ and $x = \frac{\pi}{2}$ is

Ans

✗ 1. 1 sq. units

✗ 2. $\frac{\pi}{8}$ sq. units

✓ 3. $\frac{\pi}{4}$ sq. units

✗ 4. $\frac{\pi}{2}$ sq. units

Question Type : **MCQ**
Question ID : **37135117568**
Option 1 ID : **37135170272**
Option 2 ID : **37135170271**
Option 3 ID : **37135170270**
Option 4 ID : **37135170269**
Status : **Answered**
Chosen Option : **3**

Q.24

If e_1 is the eccentricity of the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$, $a > b$ and e_2 is the eccentricity of the hyperbola $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$, then $e_1^2 + e_2^2 =$

Ans

✓ 1. 2

✗ 2. 4

✗ 3. 1

✗ 4. 3

Question Type : **MCQ**
Question ID : **37135117555**
Option 1 ID : **37135170218**
Option 2 ID : **37135170220**
Option 3 ID : **37135170217**
Option 4 ID : **37135170219**
Status : **Answered**
Chosen Option : **1**

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Q.25

The approximate value of $(66)^{\frac{1}{3}}$ is

Ans

✔ 1. 4.0416

✘ 2. 4.0447

✘ 3. 4.0433

✘ 4. 4.0481

Question Type : **MCQ**
Question ID : **37135117580**
Option 1 ID : **37135170320**
Option 2 ID : **37135170319**
Option 3 ID : **37135170318**
Option 4 ID : **37135170317**
Status : **Answered**
Chosen Option : **1**

Q.26

If $y = x^{xe^x}$, $\frac{dy}{dx} = y.g(x)$, then $g(x) =$

Ans

✔ 1. $[e^x + e^x(x+1)logx]$

✘ 2. $[e^x - e^x.x.(1+logx)]$

✘ 3. $[e^x + e^x.x.(1+logx)]$

✘ 4. $[e^x(x+1)logx]$

Question Type : **MCQ**
Question ID : **37135117594**
Option 1 ID : **37135170373**
Option 2 ID : **37135170374**
Option 3 ID : **37135170375**
Option 4 ID : **37135170376**
Status : **Answered**
Chosen Option : **1**

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Q.27

$$\int \frac{(\sin^{-1} x)^{\frac{3}{2}}}{\sqrt{1-x^2}}\, dx =$$

Ans

1. ✔ $\frac{2}{5}(\sin^{-1} x)^{\frac{5}{2}} + c$

2. ✘ $\frac{2}{5}(\cos^{-1} x)^{\frac{5}{2}} + c$

3. ✘ $\frac{5}{2}(\cos^{-1} x)^{\frac{5}{2}} + c$

4. ✘ $\frac{5}{2}(\sin^{-1} x)^{\frac{5}{2}} + c$

Question Type : **MCQ**
Question ID : **37135117579**
Option 1 ID : **37135170314**
Option 2 ID : **37135170315**
Option 3 ID : **37135170316**
Option 4 ID : **37135170313**
Status : **Answered**
Chosen Option : **4**

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Q.28 If $\bar{a} = \hat{i} + \hat{j} + \hat{k}$, $\bar{b} = 2\hat{i} - 2\hat{j} + 2\hat{k}$, $\bar{c} = 2\hat{i} + 3\hat{j} + 2\hat{k}$ are any three co-planar vectors such that $l\bar{a} + m\bar{b} + n\bar{c} = \bar{0}$, then values of l, m, n are respectively

Ans

✗ 1. $10,\ 1,\ 4$

✗ 2. $10,\ -4,\ 1$

✓ 3. $10,\ -1,\ -4$

✗ 4. $10,\ 1,\ -4$

Question Type : **MCQ**
Question ID : **37135117598**
Option 1 ID : **37135170389**
Option 2 ID : **37135170390**
Option 3 ID : **37135170392**
Option 4 ID : **37135170391**
Status : **Answered**
Chosen Option : **2**

Q.29 If $\bar{a}$, $\bar{b}$, $\bar{c}$ are the position vectors of the points A $(1, 3, 0)$, B $(2, 5, 0)$, C$(4, 2, 0)$ respectively and $\bar{c} = t_1\bar{a} + t_2\bar{b}$, then value of $t_1t_2 =$

Ans

✗ 1. -16

✗ 2. 16

✗ 3. 160

✓ 4. -160

Question Type : **MCQ**
Question ID : **37135117567**
Option 1 ID : **37135170268**
Option 2 ID : **37135170267**
Option 3 ID : **37135170265**
Option 4 ID : **37135170266**
Status : **Answered**
Chosen Option : **4**

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Q.30 If the line $\frac{x-1}{-3}=\frac{y-2}{2k}=\frac{z-3}{2}$ and $\frac{x-1}{3k}=\frac{y-5}{1}=\frac{z-6}{-5}$ are perpendicular to each other, then k is

Ans

✗ 1. $\frac{7}{10}$

✗ 2. $\frac{10}{7}$

✗ 3. $\frac{-7}{10}$

✓ 4. $\frac{-10}{7}$

Question Type : **MCQ**
Question ID : **37135117564**
Option 1 ID : **37135170256**
Option 2 ID : **37135170255**
Option 3 ID : **37135170253**
Option 4 ID : **37135170254**
Status : **Answered**
Chosen Option : **4**

Q.31 The solution of the differential equation $x.sin\left(\frac{y}{x}\right)dy=\left[y\cdot\sin\left(\frac{y}{x}\right)-x\right]dx$ is

Ans

✗ 1. $cos\left(\frac{x}{y}\right)=log|x|+c$

✗ 2. $cos\left(\frac{y}{x}\right)=log|y|+c$

✓ 3. $cos\left(\frac{y}{x}\right)=log|x|+c$

✗ 4. $cos\left(\frac{x}{y}\right)=log|y|+c$

Question Type : **MCQ**
Question ID : **37135117588**
Option 1 ID : **37135170352**
Option 2 ID : **37135170351**
Option 3 ID : **37135170350**
Option 4 ID : **37135170349**
Status : **Marked For Review**
Chosen Option : **3**

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Q.32 If $f(x) = ax^2 + bx + 2$ and $f(1) = 4$, $f(3) = 38$, then $a - b =$

Ans

✗ 1. 15

✗ 2. -2

✗ 3. 2

✓ 4. 8

Question Type : **MCQ**
Question ID : **37135117571**
Option 1 ID : **37135170284**
Option 2 ID : **37135170281**
Option 3 ID : **37135170282**
Option 4 ID : **37135170283**
Status : **Answered**
Chosen Option : **4**

Q.33

If $f(x) = \dfrac{(e^{3x}-1)\,sinx^\circ}{x^2}$ if $x \neq 0$

$= \dfrac{\pi}{60}$ if $x = 0$, then

Ans ✓ 1.

f is continuous at $x = 0$

✗ 2. $\lim\limits_{x\to 0} f(x) = 3$

✗ 3.

f has irremovable discontinuity at $x = 0$

✗ 4.

f has removable discontinuity at $x = 0$

Question Type : **MCQ**
Question ID : **37135117599**
Option 1 ID : **37135170393**
Option 2 ID : **37135170396**
Option 3 ID : **37135170395**
Option 4 ID : **37135170394**
Status : **Answered**
Chosen Option : **1**

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Q.34

The angle between the lines $y^2 sin^2\theta - xy\, sin^2\theta + x^2(cos^2\theta - 1) = 0$ is

Ans

✗ 1. $\frac{\pi}{4}$

✗ 2. $\frac{\pi}{3}$

✗ 3. $\frac{\pi}{6}$

✓ 4. $\frac{\pi}{2}$

Question Type : **MCQ**
Question ID : **37135117551**
Option 1 ID : **37135170201**
Option 2 ID : **37135170204**
Option 3 ID : **37135170203**
Option 4 ID : **37135170202**
Status : **Marked For Review**
Chosen Option : **2**

Q.35

$$\int_{-8}^{8} \frac{x^5 + x^3}{4 - x^2}\, dx =$$

Ans

✗ 1. 16

✓ 2. 0

✗ 3. 8

✗ 4. -8

Question Type : **MCQ**
Question ID : **37135117556**
Option 1 ID : **37135170224**
Option 2 ID : **37135170223**
Option 3 ID : **37135170221**
Option 4 ID : **37135170222**
Status : **Answered**
Chosen Option : **2**

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Q.36

$$\int \frac{sinx\,.\,cosx}{sin^4x + cos^4x}\,dx =$$

Ans

✗ 1. $tan^{-1}(sin^2\,x) + c$

✗ 2. $2\,tan^{-1}(tan^2\,x) + c$

✓ 3. $\frac{1}{2}tan^{-1}(tan^2\,x) + c$

✗ 4. $tan^{-1}(cos^2\,x) + c$

Question Type : **MCQ**
Question ID : **37135117574**
Option 1 ID : **37135170293**
Option 2 ID : **37135170295**
Option 3 ID : **37135170296**
Option 4 ID : **37135170294**
Status : **Answered**
Chosen Option : **3**

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Q.37

If $\int_{o}^{a} \frac{dx}{1+4x^2} = \frac{\pi}{8}$, then $a =$

Ans

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

2. 2

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

4. 1

Question Type : **MCQ**
Question ID : **37135117557**
Option 1 ID : **37135170226**
Option 2 ID : **37135170228**
Option 3 ID : **37135170225**
Option 4 ID : **37135170227**
Status : **Answered**
Chosen Option : **1**

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Q.38 The cartesian equation of the curve $x = 3 + 5cos\theta$, $y = 2 + 5sin\theta$ is

$(0 \leq \theta \leq 2\pi)$

Ans

✗ 1.

$$x^2 + y^2 - 6x + 4y - 12 = 0$$

✗ 2.

$$x^2 + y^2 + 6x + 4y + 12 = 0$$

✗ 3. $x^2 + y^2 + 6x - 4y + 12 = 0$

✓ 4.

$$x^2 + y^2 - 6x - 4y - 12 = 0$$

Question Type : **MCQ**
Question ID : **37135117597**
Option 1 ID : **37135170385**
Option 2 ID : **37135170386**
Option 3 ID : **37135170388**
Option 4 ID : **37135170387**
Status : **Answered**
Chosen Option : **4**

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Q.39

If $X \sim B\left(8, \frac{1}{2}\right)$, then $P(|x-4| \leq 2) =$

Ans

✔ 1. $\frac{119}{128}$

✘ 2. $\frac{29}{128}$

✘ 3. $\frac{238}{728}$

✘ 4. $\frac{119}{228}$

Question Type : **MCQ**
Question ID : **37135117584**
Option 1 ID : **37135170334**
Option 2 ID : **37135170335**
Option 3 ID : **37135170336**
Option 4 ID : **37135170333**
Status : **Answered**
Chosen Option : **1**

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Q.40

The value of $\sin^2\left(\frac{\pi}{8}\right) =$

Ans

✗ 1. $\frac{\sqrt{2}+1}{2\sqrt{2}}$

✗ 2. $\frac{\sqrt{5}+1}{2\sqrt{2}}$

✗ 3. $\frac{\sqrt{5}-1}{2\sqrt{2}}$

✓ 4. $\frac{\sqrt{2}-1}{2\sqrt{2}}$

Question Type : **MCQ**
Question ID : **37135117562**
Option 1 ID : **37135170246**
Option 2 ID : **37135170248**
Option 3 ID : **37135170247**
Option 4 ID : **37135170245**
Status : **Answered**
Chosen Option : **1**

Q.41

If $sinx + cosecx = 3$, then value of $sin^4x + cosec^4x$ is

Ans

✗ 1. 74

✓ 2. 47

✗ 3. 07

✗ 4. 49

Question Type : **MCQ**
Question ID : **37135117592**
Option 1 ID : **37135170365**
Option 2 ID : **37135170366**
Option 3 ID : **37135170367**
Option 4 ID : **37135170368**
Status : **Answered**
Chosen Option : **2**

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Q.42

The function $f(x) = 3x^4 + 16x^3 - 30x^2 + 10$ is increasing for

Ans

✗ 1. every real value of x

✗ 2. $x = 0,\ x = 1$ only

✓ 3. $x \in (-5, 0) \cup (1, \infty)$

✗ 4. $x \in [0, 1]$

Question Type : **MCQ**
Question ID : **37135117595**
Option 1 ID : **37135170377**
Option 2 ID : **37135170380**
Option 3 ID : **37135170379**
Option 4 ID : **37135170378**
Status : **Marked For Review**
Chosen Option : **3**

Q.43

The value of $\tan\left[\cos^{-1}\left(\frac{4}{5}\right) + tan^{-1}\left(\frac{2}{3}\right)\right]$ is

Ans

✓ 1. $\frac{17}{6}$

✗ 2. $\frac{16}{7}$

✗ 3. $\frac{6}{17}$

✗ 4. $\frac{7}{16}$

Question Type : **MCQ**
Question ID : **37135117577**
Option 1 ID : **37135170306**
Option 2 ID : **37135170307**
Option 3 ID : **37135170305**
Option 4 ID : **37135170308**
Status : **Answered**
Chosen Option : **1**

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Q.44

If $y = 2^{ax}$ and $\left(\frac{dy}{dx}\right)_{x=1} = log256$, then $a =$

Ans

✗ 1. 4

✓ 2. 2

✗ 3. 8

✗ 4. 3

Question Type : **MCQ**
Question ID : **37135117590**
Option 1 ID : **37135170357**
Option 2 ID : **37135170359**
Option 3 ID : **37135170358**
Option 4 ID : **37135170360**
Status : **Answered**
Chosen Option : **4**

Q.45

$$\int e^x.secx\,(1+tanx)\;dx =$$

Ans

✗ 1. $e^x cosecx + c$

✓ 2. $e^x secx + c$

✗ 3. $e^x cotx + c$

✗ 4. $e^x tanx + c$

Question Type : **MCQ**
Question ID : **37135117576**
Option 1 ID : **37135170303**
Option 2 ID : **37135170302**
Option 3 ID : **37135170304**
Option 4 ID : **37135170301**
Status : **Answered**
Chosen Option : **2**

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Q.46

The unit vector perpendicular to the plane $4x - 3y + 12z = 15$ is

Ans

1. $\frac{4\hat{i}+3\hat{j}+12\hat{k}}{13}$

2. $\frac{4\hat{i}-3\hat{j}+12\hat{k}}{13}$

3. $\frac{-4\hat{i}+3\hat{j}+12\hat{k}}{13}$

4. $\frac{-4\hat{i}-3\hat{j}+12\hat{k}}{13}$

Question Type : **MCQ**
Question ID : **37135117573**
Option 1 ID : **37135170292**
Option 2 ID : **37135170289**
Option 3 ID : **37135170291**
Option 4 ID : **37135170290**
Status : **Answered**
Chosen Option : **2**

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Q.47 If L. P. P. has optimum solutions at two consecutive corner points of feasible region, then L. P. P. has

Ans

✔ 1. infinite solutions

✘ 2. no solution

✘ 3. two solutions

✘ 4. unique solution

Question Type : **MCQ**
Question ID : **37135117593**
Option 1 ID : **37135170371**
Option 2 ID : **37135170372**
Option 3 ID : **37135170370**
Option 4 ID : **37135170369**
Status : **Answered**
Chosen Option : **1**

Q.48 The order and the degree of the differential equation $\left[1+\left(\frac{dy}{dx}\right)^3\right]^{\frac{7}{3}} = 7\left(\frac{d^2y}{dx^2}\right)$ are respectively

Ans

✔ 1. 2, 3

✘ 2. 3, 3

✘ 3. 2, 2

✘ 4. 3, 2

Question Type : **MCQ**
Question ID : **37135117565**
Option 1 ID : **37135170260**
Option 2 ID : **37135170259**
Option 3 ID : **37135170258**
Option 4 ID : **37135170257**
Status : **Answered**
Chosen Option : **1**

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Q.49 If $A = \{2, 3, 4, 5, 6\}$, then which of the following statement has truth value 'false'

Ans

✗ 1.

$\exists\, x \in A$, such that $(x - 2) \in N$.

✓ 2.

$\forall\, x \in A$, $x + 6$ is divisible by 2.

✗ 3.

$\exists\, x \in A$, such that $x + 2$ is a prime number.

✗ 4.

$\exists\, x \in A$, such that $x^2 + 1$ is an even number.

Question Type : **MCQ**
Question ID : **37135117591**
Option 1 ID : **37135170362**
Option 2 ID : **37135170364**
Option 3 ID : **37135170361**
Option 4 ID : **37135170363**
Status : **Answered**
Chosen Option : **2**

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Q.50

The value of $\cos^{-1}\left(\cos\frac{8\pi}{3}\right)$ is

Ans

1. ✗ $\frac{8\pi}{3}$

2. ✗ $\frac{\pi}{3}$

3. ✓ $\frac{2\pi}{3}$

4. ✗ $\frac{3\pi}{2}$

Question Type : **MCQ**
Question ID : **37135117600**
Option 1 ID : **37135170397**
Option 2 ID : **37135170398**
Option 3 ID : **37135170399**
Option 4 ID : **37135170400**
Status : **Answered**
Chosen Option : **1**

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