JEE 2023 Session-1 24th Jan to 1st Feb 2023

Application No	
Candidate Name	
Roll No	
Test Date	01/02/2023
Test Time	9:00 AM - 12:00 PM
Subject	B TECH

Section : **Physics Section A**

Q.1   Match List I with List II:

List I	List II
A. Intrinsic semiconductor	I. Fermi-level near the valence band
B. n-type semiconductor	II. Fermi-level in the middle of valence and conduction band.
C. p-type semiconductor	III. Fermi-level near the conduction band
D. Metals	IV. Fermi-level inside the conduction band

Choose the **correct** answer from the options given below:

Options
1. A-I,   B-II,   C-III,   D-IV
2. A-III, B-I,   C-II,   D-IV
3. A-II,   B-I,   C-III,   D-IV
4. A-II,   B-III, C-I,   D-IV

Question Type : **MCQ**
Question ID : **3666942483**
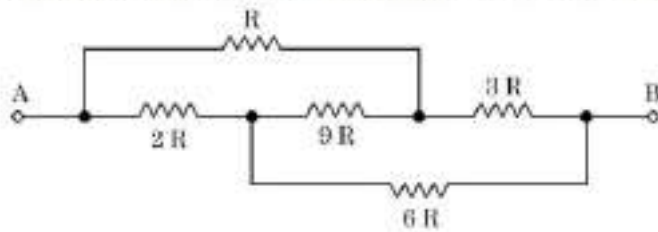Option 1 ID : **3666947821**
Option 2 ID : **3666947822**
Option 3 ID : **3666947820**
Option 4 ID : **3666947819**
Status : **Answered**
Chosen Option : **4**

Q.2 The equivalent resistance between A and B of the network shown in figure:

Options

1. $11\dfrac{2}{3} \, R$

2. $14 \, R$

3. $21 \, R$

4. $\dfrac{8}{3} R$

Question Type : **MCQ**
Question ID : **3666942491**
Option 1 ID : **3666947852**
Option 2 ID : **3666947854**
Option 3 ID : **3666947851**
Option 4 ID : **3666947853**
Status : **Answered**
Chosen Option : **4**

Q.3 The average kinetic energy of a molecule of the gas is

Options 1. proportional to absolute temperature

2. proportional to volume

3. proportional to pressure

4. dependent on the nature of the gas

Question Type : **MCQ**
Question ID : **3666942500**
Option 1 ID : **3666947887**
Option 2 ID : **3666947890**
Option 3 ID : **3666947888**
Option 4 ID : **3666947889**
Status : **Not Answered**
Chosen Option : **--**

Q.4 A child stands on the edge of the cliff 10 m above the ground and throws a stone horizontally with an initial speed of 5 ms^{-1}. Neglecting the air resistance, the speed with which the stone hits the ground will be _____ ms^{-1} (given, $g = 10$ ms^{-2}).

Options
1. 20
2. 25
3. 15
4. 30

Question Type : **MCQ**
Question ID : **3666942490**
Option 1 ID : **3666947847**
Option 2 ID : **3666947849**
Option 3 ID : **3666947848**
Option 4 ID : **3666947850**
Status : **Not Answered**
Chosen Option : **--**

Q.5 A block of mass 5 kg is placed at rest on a table of rough surface. Now, if a force of 30N is applied in the direction parallel to surface of the table, the block slides through a distance of 50 m in an interval of time 10s. Coefficient of kinetic friction is (given, $g = 10$ ms^{-2}):

Options
1. 0.25
2. 0.60
3. 0.50
4. 0.75

Question Type : **MCQ**
Question ID : **3666942495**
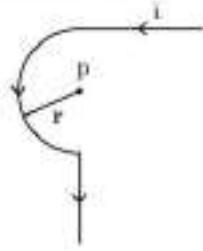Option 1 ID : **3666947868**
Option 2 ID : **3666947869**
Option 3 ID : **3666947867**
Option 4 ID : **3666947870**
Status : **Answered**
Chosen Option : **3**

Q.6   Find the magnetic field at the point P in figure. The curved portion is a semicircle connected to two long straight wires.

Options

1. $\dfrac{\mu_0 i}{2r}\left(1+\dfrac{2}{\pi}\right)$

2. $\dfrac{\mu_0 i}{2r}\left(\dfrac{1}{2}+\dfrac{1}{\pi}\right)$

3. $\dfrac{\mu_0 i}{2r}\left(1+\dfrac{1}{\pi}\right)$

4. $\dfrac{\mu_0 i}{2r}\left(\dfrac{1}{2}+\dfrac{1}{2\pi}\right)$

Question Type :	**MCQ**
Question ID :	**3666942489**
Option 1 ID :	**3666947843**
Option 2 ID :	**3666947845**
Option 3 ID :	**3666947844**
Option 4 ID :	**3666947846**
Status :	**Answered**
Chosen Option :	**3**

Q.7   The mass of proton, neutron and helium nucleus are respectively 1.0073 u, 1.0087 u and 4.0015 u. The binding energy of helium nucleus is:

Options
1.   14.2 MeV

2.   56.8 MeV

3.   28.4 MeV

4.   7.1 MeV

Question Type :	**MCQ**
Question ID :	**3666942484**
Option 1 ID :	**3666947824**
Option 2 ID :	**3666947826**
Option 3 ID :	**3666947825**
Option 4 ID :	**3666947823**
Status :	**Answered**
Chosen Option :	**3**

Q.8 Which of the following frequencies does not belong to FM broadcast.

Options 1. 99 MHz

2. 64 MHz

3. 106 MHz

4. 89 MHz

Question Type :	**MCQ**
Question ID :	**3666942482**
Option 1 ID :	**3666947818**
Option 2 ID :	**3666947817**
Option 3 ID :	**3666947815**
Option 4 ID :	**3666947816**
Status :	**Answered**
Chosen Option :	**4**

Q.9 Match List I with List II:

List I	List II
A. AC generator	I. Presence of both L and C
B. Transformer	II. Electromagnetic Induction
C. Resonance phenomenon to occur	III. Quality factor
D. Sharpness of resonance	IV. Mutual Induction

Choose the *correct* answer from the options given below:

Options 1. A-II, B-IV, C-I, D-III

2. A-IV, B-II, C-I, D-III

3. A-II, B-I, C-III, D-IV

4. A-IV, B-III, C-I, D-II

Question Type :	**MCQ**
Question ID :	**3666942488**
Option 1 ID :	**3666947841**
Option 2 ID :	**3666947839**
Option 3 ID :	**3666947840**
Option 4 ID :	**3666947842**
Status :	**Answered**
Chosen Option :	**2**

Q.10 Let σ be the uniform surface charge density of two infinite thin plane sheets shown in figure. Then the electric fields in three different region E_I, E_{II} and E_{III} are:
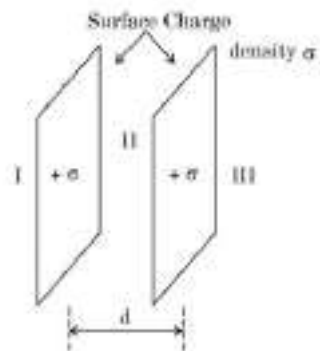
Options

1. $\vec{E}_I = \dfrac{\sigma}{2\epsilon_0}\hat{n}, \vec{E}_{II} = 0, \vec{E}_{III} = \dfrac{\sigma}{2\epsilon_0}\hat{n}$

2. $\vec{E}_I = 0, \vec{E}_{II} = \dfrac{\sigma}{\epsilon_0}\hat{n}, E_{III} = 0$

3. $\vec{E}_I = \dfrac{2\sigma}{\epsilon_0}\hat{n}, \vec{E}_{II} = 0, \vec{E}_{III} = \dfrac{2\sigma}{\epsilon_0}\hat{n}$

4. $\vec{E}_I = -\dfrac{\sigma}{\epsilon_0}\hat{n}, \vec{E}_{II} = 0, \vec{E}_{III} = \dfrac{\sigma}{\epsilon_0}\hat{n}$

Question Type : **MCQ**
Question ID : **3666942492**
Option 1 ID : **3666947857**
Option 2 ID : **3666947855**
Option 3 ID : **3666947858**
Option 4 ID : **3666947856**
Status : **Answered**
Chosen Option : **1**

Q.11 A proton moving with one tenth of velocity of light has a certain de Broglie wavelength of λ. An alpha particle having certain kinetic energy has the same de-Brogle wavelength λ. The ratio of kinetic energy of proton and that of alpha particle is:

Options
1. $1 : 4$

2. $2 : 1$

3. $4 : 1$

4. $1 : 2$

Question Type : **MCQ**
Question ID : **3666942485**
Option 1 ID : **3666947830**
Option 2 ID : **3666947827**
Option 3 ID : **3666947829**
Option 4 ID : **3666947828**
Status : **Answered**
Chosen Option : **1**

Q.12 Given below are two statements:

Statement I: Acceleration due to gravity is different at different places on the surface of earth.

Statement II: Acceleration due to gravity increases as we go down below the earth's surface.

In the light of the above statements, choose the **correct** answer from the options given below

Options 1. Both Statement I and Statement II are true

2. Statement I is false but Statement II is true

3. Both Statement I and Statement II are false

4. Statement I is true but Statement II is false

Question Type : **MCQ**
Question ID : **3666942497**
Option 1 ID : **3666947875**
Option 2 ID : **3666947878**
Option 3 ID : **3666947876**
Option 4 ID : **3666947877**
Status : **Answered**
Chosen Option : **2**

Q.13 A steel wire with mass per unit length 7.0×10^{-3} kg m^{-1} is under tension of 70 N. The speed of transverse waves in the wire will be:

Options 1. $200\,\pi$ m/s

2. 50 m/s

3. 100 m/s

4. 10 m/s

Question Type : **MCQ**
Question ID : **3666942493**
Option 1 ID : **3666947862**
Option 2 ID : **3666947860**
Option 3 ID : **3666947861**
Option 4 ID : **3666947859**
Status : **Answered**
Chosen Option : **3**

Q.14 Match List I with List II:

List I	List II
A. Microwaves	I. Radio active decay of the nucleus
B. Gamma rays	II. Rapid acceleration and deceleration of electron in aerials
C. Radio waves	III. Inner shell electrons
D. X-rays	IV. Klystron valve

Choose the *correct* answer from the options given below:

Options
1. A-IV, B-I, C-II, D-III
2. A-I, B-II, C-III, D-IV
3. A-I, B-III, C-IV, D-II
4. A-IV, B-III, C-II, D-I

Question Type : **MCQ**
Question ID : **3666942487**
Option 1 ID : **3666947835**
Option 2 ID : **3666947836**
Option 3 ID : **3666947838**
Option 4 ID : **3666947837**
Status : **Answered**
Chosen Option : **3**

Q.15 A mercury drop of radius 10^{-2} m is broken into 125 equal size droplets. Surface tension of mercury is 0.45 Nm^{-1}. The gain in surface energy is:

Options
1. 17.5×10^{-5} J
2. 2.26×10^{-5} J
3. 28×10^{-5} J
4. 5×10^{-5} J

Question Type : **MCQ**
Question ID : **3666942498**
Option 1 ID : **3666947882**
Option 2 ID : **3666947879**
Option 3 ID : **3666947881**
Option 4 ID : **3666947880**
Status : **Answered**
Chosen Option : **3**

Q.16 'n' polarizing sheets are arranged such that each makes an angle 45° with the preceeding sheet. An unpolarized light of intensity I is incident into this arrangement. The output intensity is found to be $I/64$. The value of n will be:

Options
1. 3
2. 4
3. 5
4. 6

Question Type : **MCQ**
Question ID : **3666942486**
Option 1 ID : **3666947833**
Option 2 ID : **3666947834**
Option 3 ID : **3666947831**
Option 4 ID : **3666947832**
Status : **Answered**
Chosen Option : **2**

Q.17 An object moves with speed v_1, v_2 and v_3 along a line segment AB, BC and CD respectively as shown in figure. Where AB=BC and AD=3AB, then average speed of the object will be:

Options

1. $\dfrac{3v_1v_2v_3}{(v_1v_2 + v_2v_3 + v_3v_1)}$

2. $\dfrac{(v_1 + v_2 + v_3)}{3v_1v_2v_3}$

3. $\dfrac{v_1v_2v_3}{3(v_1v_2 + v_2v_3 + v_3v_1)}$

4. $\dfrac{(v_1 + v_2 + v_3)}{3}$

Question Type : **MCQ**
Question ID : **3666942494**
Option 1 ID : **3666947863**
Option 2 ID : **3666947866**
Option 3 ID : **3666947865**
Option 4 ID : **3666947864**
Status : **Answered**
Chosen Option : **2**

Q.18

$\left(P + \dfrac{a}{V^2}\right)(V - b) = RT$ represents the equation of state of some gases. Where

P is the pressure, V is the volume, T is the temperature and a, b, R are the

constants. The physical quantity, which has dimensional formula as that of

$\dfrac{b^2}{a}$, will be:

Options 1. Bulk modulus

2. Modulus of rigidity

3. Compressibility

4. Energy density

Question Type : **MCQ**

Question ID : **3666942481**

Option 1 ID : **3666947811**

Option 2 ID : **3666947814**

Option 3 ID : **3666947812**

Option 4 ID : **3666947813**

Status : **Answered**

Chosen Option : **1**

Q.19

If earth has a mass nine times and radius twice to that of a planet P. Then

$\dfrac{v_e}{3}\sqrt{x}$ ms^{-1} will be the minimum velocity required by a rocket to pull out of

gravitational force of P, where v_e is escape velocity on earth. The value of x is

Options 1. 1

2. 2

3. 18

4. 3

Question Type : **MCQ**

Question ID : **3666942496**

Option 1 ID : **3666947871**

Option 2 ID : **3666947872**

Option 3 ID : **3666947874**

Option 4 ID : **3666947873**

Status : **Answered**

Chosen Option : **4**

Q.20 A sample of gas at temperature T is adiabatically expanded to double its volume. The work done by the gas in the process is $\left(\text{given, } \gamma = \frac{3}{2}\right)$

Options

1. $W = \dfrac{R}{T}\left[2 - \sqrt{2}\right]$

2. $W = \dfrac{T}{R}\left[\sqrt{2} - 2\right]$

3. $W = RT\left[2 - \sqrt{2}\right]$

4. $W = TR\left[\sqrt{2} - 2\right]$

Question Type : **MCQ**
Question ID : **3666942499**
Option 1 ID : **3666947884**
Option 2 ID : **3666947885**
Option 3 ID : **3666947883**
Option 4 ID : **3666947886**
Status : **Not Answered**
Chosen Option : **--**

Section : **Physics Section B**

Q.21 A light of energy 12.75 eV is incident on a hydrogen atom in its ground state. The atom absorbs the radiation and reaches to one of its excited states. The angular momentum of the atom in the excited state is $\frac{x}{\pi} \times 10^{-17}$ eVs. The value of x is _____ (use $h = 4.14 \times 10^{-15}$ eVs, $c = 3 \times 10^8$ ms^{-1}).

Given **--**
Answer :

Question Type : **SA**
Question ID : **3666942503**
Status : **Not Answered**

Q.22 A charge particle of 2 µC accelerated by a potential difference of 100V enters a region of uniform magnetic field of magnitude 4 mT at right angle to the direction of field. The charge particle completes semicircle of radius 3 cm inside magnetic field. The mass of the charge particle is _____ × 10^{-18} kg.

Given **--**
Answer :

Question Type : **SA**
Question ID : **3666942506**
Status : **Not Answered**

Q.23 A certain pressure 'P' is applied to 1 litre of water and 2 litre of a liquid separately. Water gets compressed to 0.01% whereas the liquid gets compressed to 0.03%. The ratio of Bulk modulus of water to that of the liquid is $\frac{3}{x}$. The value of x is _____.
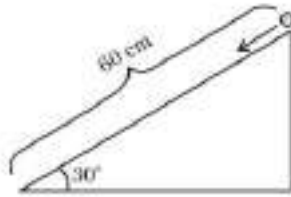
Given **--**
Answer :

Question Type : **SA**
Question ID : **3666942509**
Status : **Not Answered**

Q.24 A solid cylinder is released from rest from the top of an inclined plane of inclination $30°$ and length 60 cm. If the cylinder rolls without slipping, its speed upon reaching the bottom of the inclined plane is _____ ms^{-1}.

(Given g = 10 ms^{-2})

Given --
Answer :

> Question Type : **SA**
> Question ID : **3666942508**
> Status : **Not Answered**

Q.25 A small particle moves to position $5\hat{i} - 2\hat{j} + \hat{k}$ from its initial position $2\hat{i} + 3\hat{j} - 4\hat{k}$ under the action of force $5\hat{i} + 2\hat{j} + 7\hat{k}$ N. The value of work done will be _____ J.

Given --
Answer :

> Question Type : **SA**
> Question ID : **3666942507**
> Status : **Not Answered**

Q.26 A series LCR circuit is connected to an ac source of 220V, 50Hz. The circuit contain a resistance R = 100Ω and an inductor of inductive reactance $X_L = 79.6Ω$. The capacitance of the capacitor needed to maximize the average rate at which energy is supplied will be _____ μF.

Given --
Answer :

> Question Type : **SA**
> Question ID : **3666942505**
> Status : **Not Answered**

Q.27 Two equal positive point charges are separated by a distance $2a$. The distance of a point from the centre of the line joining two charges on the equatorial line (perpendicular bisector) at which force experienced by a test charge q_0 becomes maximum is $\frac{a}{\sqrt{x}}$. The value of x is _____.

Given --
Answer :

> Question Type : **SA**
> Question ID : **3666942501**
> Status : **Not Answered**

Q.28 A thin cylindrical rod of length 10 cm is placed horizontally on the principle axis of a concave mirror of focal length 20 cm. The rod is placed in a such a way that mid point of the rod is at 40 cm from the pole of mirror. The length of the image formed by the mirror will be $\frac{x}{3}$ cm. The value of x is _____.

Given --
Answer :

Question Type : **SA**
Question ID : **3666942504**
Status : **Not Answered**

Q.29 In an experiment to find emf of a cell using potentiometer, the length of null point for a cell of emf 1.5 V is found to be 60 cm. If this cell is replaced by another cell of emf E, the length of null point increases by 40 cm. The value of E is $\frac{x}{10}V$. The value of x is _____.

Given --
Answer :

Question Type : **SA**
Question ID : **3666942502**
Status : **Not Answered**

Q.30 The amplitude of a particle executing SHM is 3 cm. The displacement at which its kinetic energy will be 25% more than the potential energy is: _____ cm.

Given --
Answer :

Question Type : **SA**
Question ID : **3666942510**
Status : **Not Answered**

Section : **Chemistry Section A**

Q.31

Highest oxidation state of Mn is exhibited in Mn_2O_7. The correct statements about Mn_2O_7 are

(A)   Mn is tetrahedrally surrounded by oxygen atoms.

(B)   Mn is octahedrally surrounded by oxygen atoms.

(C)   Contains Mn-O-Mn bridge.

(D)   Contains Mn-Mn bond.

Choose the correct answer from the options given below:

Options

1.   A and D only

2.   B and D only

3.   B and C only

4.   A and C only

Question Type : **MCQ**
Question ID : **3666942519**
Option 1 ID : **3666947933**
Option 2 ID : **3666947936**
Option 3 ID : **3666947934**
Option 4 ID : **3666947935**
Status : **Answered**
Chosen Option : **4**

Q.32

A solution of $FeCl_3$ when treated with $K_4[Fe(CN)_6]$ gives a prussian blue precipitate due to the formation of

Options

1. $K[Fe_2(CN)_6]$

2. $Fe_4[Fe(CN)_6]_3$

3. $Fe_3[Fe(CN)_6]_2$

4. $Fe[Fe(CN)_6]$

Question Type : **MCQ**
Question ID : **3666942523**
Option 1 ID : **3666947950**
Option 2 ID : **3666947952**
Option 3 ID : **3666947951**
Option 4 ID : **3666947949**
Status : **Answered**
Chosen Option : **3**

Q.33

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: In an Ellingham diagram, the oxidation of carbon to carbon monoxide shows a negative slope with respect to temperature.

Reason R: CO tends to get decomposed at higher temperature.

In the light of the above statements, choose the **correct** answer from the options given below

Options

1. **A** is correct but **R** is not correct

2. Both **A** and **R** are correct but **R** is **NOT** the correct explanation of **A**

3. Both **A** and **R** are correct and **R** is the correct explanation of **A**

4. **A** is not correct but **R** is correct

Question Type : **MCQ**
Question ID : **3666942515**
Option 1 ID : **3666947919**
Option 2 ID : **3666947918**
Option 3 ID : **3666947917**
Option 4 ID : **3666947920**
Status : **Answered**
Chosen Option : **1**

Q.34

How can photochemical smog be controlled?

Options

1. By using tall chimneys.

2. By using catalyst.

3. By complete combustion of fuel.

4. By using catalytic convertors in the automobiles/industry.

Question Type : **MCQ**
Question ID : **3666942521**
Option 1 ID : **3666947943**
Option 2 ID : **3666947944**
Option 3 ID : **3666947941**
Option 4 ID : **3666947942**
Status : **Answered**
Chosen Option : **3**

Q.35

Which of the following complex will show largest splitting of d-orbitals?

Options

1. $[Fe(C_2O_4)_3]^{3-}$

2. $[Fe(NH_3)_6]^{3+}$

3. $[FeF_6]^{3-}$

4. $[Fe(CN)_6]^{3-}$

Question Type : **MCQ**

Question ID : **3666942520**

Option 1 ID : **3666947938**

Option 2 ID : **3666947940**

Option 3 ID : **3666947937**

Option 4 ID : **3666947939**

Status : **Not Answered**

Chosen Option : **--**

Q.36

Match **List I** with **List II**

List I		List II	
(A)	Slaked lime	(I)	NaOH
(B)	Dead burnt plaster	(II)	Ca(OH)$_2$
(C)	Caustic soda	(III)	Na$_2$CO$_3$.10H$_2$O
(D)	Washing soda	(IV)	CaSO$_4$

Choose the correct answer from the options given below:

Options

1. (A) – III, (B) – IV, (C) – II, (D) – I

2. (A) – II, (B) – IV, (C) – I, (D) – III

3. (A) – I, (B) – IV, (C) – II, (D) – III

4. (A) – III, (B) – II, (C) – IV, (D) – I

Question Type : **MCQ**

Question ID : **3666942518**

Option 1 ID : **3666947930**
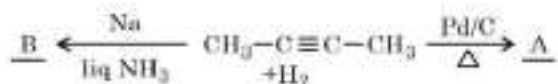
Option 2 ID : **3666947931**

Option 3 ID : **3666947932**

Option 4 ID : **3666947929**

Status : **Answered**

Chosen Option : **3**

Q.37 But-2-yne is reacted separately with one mole of Hydrogen as shown below:

$$\underline{B} \xleftarrow[\text{liq NH}_3]{\text{Na}} CH_3-C\equiv C-CH_3 \xrightarrow[\Delta]{\text{Pd/C}} \underline{A}$$
$$+H_2$$

A. A is more soluble than B.

B. The boiling point & melting point of A are higher and lower than B respectively.

C. A is more polar than B because dipole moment of A is zero.

D. Br₂ adds easily to B than A.

Identify the incorrect statements from the options given below:

Options
1. A and B only

2. B and C only

3. B, C & D only

4. A, C & D only

Question Type : **MCQ**
Question ID : **3666942528**
Option 1 ID : **3666947969**
Option 2 ID : **3666947970**
Option 3 ID : **3666947971**
Option 4 ID : **3666947972**
Status : **Not Answered**
Chosen Option : **--**

Q.38 Given below are two statements:

Statement I: Chlorine can easily combine with oxygen to form oxides; and the product has a tendency to explode.

Statement II: Chemical reactivity of an element can be determined by its reaction with oxygen and halogens.

In the light of the above statements, choose the **correct** answer from the options given below

Options
1. Statement I is true but Statement II is false

2. Statement I is false but Statement II is true

3. Both the Statements I and II are true

4. Both the Statements I and II are false

Question Type : **MCQ**
Question ID : **3666942514**
Option 1 ID : **3666947915**
Option 2 ID : **3666947916**
Option 3 ID : **3666947913**
Option 4 ID : **3666947914**
Status : **Answered**
Chosen Option : **1**

Q.39

Match **List I** with **List II**

	List I		List II
	Test		**Functional group / Class of Compound**
(A)	Molisch's Test	(I)	Peptide
(B)	Biuret Test	(II)	Carbohydrate
(C)	Carbylamine Test	(III)	Primary amine
(D)	Schiff's Test	(IV)	Aldehyde

Choose the correct answer from the options given below:

Options
1. (A) – III, (B) – IV, (C) – I, (D) – II

2. (A) – II, (B) – I, (C) – III, (D) – IV

3. (A) – I, (B) – II, (C) – III, (D) – IV

4. (A) – III, (B) – IV, (C) – II, (D) – I

Question Type : **MCQ**
Question ID : **3666942524**
Option 1 ID : **3666947954**
Option 2 ID : **3666947953**
Option 3 ID : **3666947955**
Option 4 ID : **3666947956**
Status : **Answered**
Chosen Option : **4**

Q.40

Choose the correct statement(s):

A. Beryllium oxide is purely acidic in nature.

B. Beryllium carbonate is kept in the atmosphere of CO_2.

C. Beryllium sulphate is readily soluble in water.

D. Beryllium shows anomalous behavior.

Choose the correct answer from the options given below:

Options
1. B, C and D only

2. A only

3. A, B and C only

4. A and B only

Question Type : **MCQ**
Question ID : **3666942517**
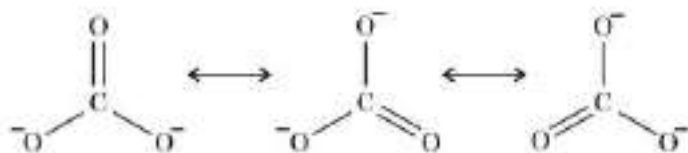Option 1 ID : **3666947928**
Option 2 ID : **3666947925**
Option 3 ID : **3666947927**
Option 4 ID : **3666947926**
Status : **Answered**
Chosen Option : **1**

Q.41

Resonance in carbonate ion (CO_3^{2-}) is

Which of the following is true?

Options
1. Each structure exists for equal amount of time.

2.

CO_3^{2-} has a single structure i.e., resonance hybrid of the above three structures.

3.

It is possible to identify each structure individually by some physical or chemical method.

4.

All these structures are in dynamic equilibrium with each other.

Question Type : **MCQ**

Question ID : **3666942512**
Option 1 ID : **3666947906**
Option 2 ID : **3666947907**
Option 3 ID : **3666947908**
Option 4 ID : **3666947905**
Status : **Not Answered**
Chosen Option : **--**

Q.42

Which of the following are the example of double salt?

A. $FeSO_4.(NH_4)_2SO_4.6H_2O$

B. $CuSO_4.4NH_3.H_2O$

C. $K_2SO_4.Al_2(SO_4)_3.24H_2O$

D. $Fe(CN)_2.4KCN$

Choose the correct answer

Options   1.   B and D only

2.   A and C only

3.   A, B and D only

4.   A and B only

Question Type : **MCQ**
Question ID : **3666942522**
Option 1 ID : **3666947948**
Option 2 ID : **3666947946**
Option 3 ID : **3666947947**
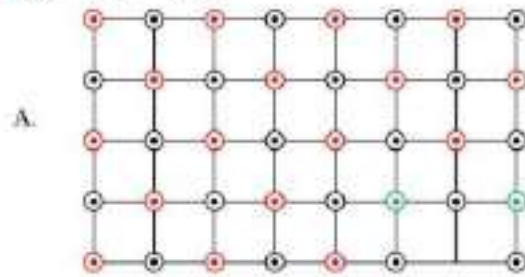Option 4 ID : **3666947945**
Status : **Answered**
Chosen Option : **2**

Q.43

Which of the following represents the lattice structure of $A_{0.96}O$ containing A^{2+}, A^{3+} and O^{2-} ions?

⊙ A^{2+} ⊙ A^{3+} ⊙ O^{2-}

A.

B.

C.
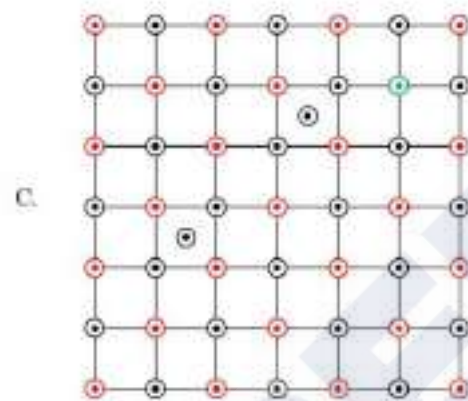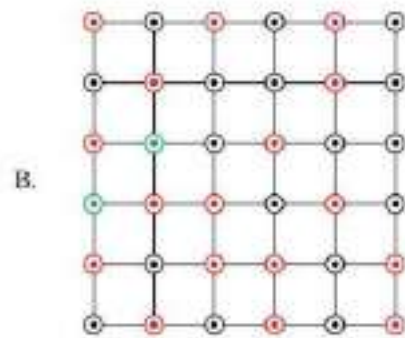
Options

1.   B only

2.   B and C only

3.   A and B only

4.   A only

Question Type : **MCQ**
Question ID : **3666942511**
Option 1 ID : **3666947902**
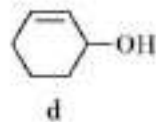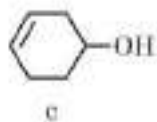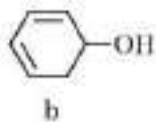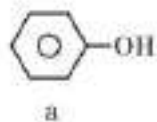Option 2 ID : **3666947904**
Option 3 ID : **3666947903**
Option 4 ID : **3666947901**
Status : **Not Answered**
Chosen Option : **--**

Q.44

Decreasing order of dehydration of the following alcohols is

a   b   c   d

Options

1. $b > d > c > a$

2. $d > b > c > a$

3. $b > a > d > c$

4. $a > d > b > c$

Question Type : **MCQ**

Question ID : **3666942527**

Option 1 ID : **3666947966**

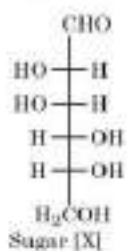Option 2 ID : **3666947968**

Option 3 ID : **3666947967**

Option 4 ID : **3666947965**

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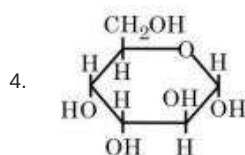
Chosen Option : **4**

Q.45

The correct representation in six membered pyranose form for the following sugar [X] is

Sugar [X]

Options

1.

2.

3.

4.
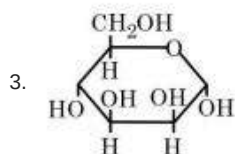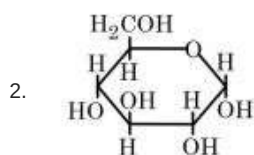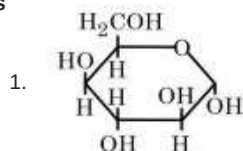
Question Type : **MCQ**
Question ID : **3666942529**
Option 1 ID : **3666947976**
Option 2 ID : **3666947973**
Option 3 ID : **3666947975**
Option 4 ID : **3666947974**
Status : **Not Answered**
Chosen Option : **--**

Q.46

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: Hydrogen is an environment friendly fuel.

Reason R: Atomic number of hydrogen is 1 and it is a very light element.

In the light of the above statements, choose the **correct** answer from the options given below

Options

1. **A** is false but **R** is true

2. Both **A** and **R** are true and **R** is the correct explanation of **A**

3. **A** is true but **R** is false

4. Both **A** and **R** are true but **R** is **NOT** the correct explanation of **A**

Question Type : **MCQ**
Question ID : **3666942516**
Option 1 ID : **3666947924**
Option 2 ID : **3666947921**
Option 3 ID : **3666947923**
Option 4 ID : **3666947922**
Status : **Answered**
Chosen Option : **4**

Q.47

Given below are two statements: One is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: Amongst He, Ne, Ar and Kr, 1g of activated charcoal adsorbs more of Kr.

Reason R: The critical volume V_c (cm^3 mol^{-1}) and critical pressure P_c (atm) is highest for Krypton but the compressibility factor at critical point Z_c is lowest for Krypton.

In the light of the above statements, choose the **correct** answer from the options given below

Options

1. **A** is true but **R** is false

2. Both **A** and **R** are true and **R** is the correct explanation of **A**

3. **A** is false but **R** is true

4. Both **A** and **R** are true but **R** is **NOT** the correct explanation of **A**

Question Type : **MCQ**
Question ID : **3666942513**
Option 1 ID : **3666947911**
Option 2 ID : **3666947909**
Option 3 ID : **3666947912**
Option 4 ID : **3666947910**
Status : **Not Answered**
Chosen Option : **--**

Q.48   Match **List I** with **List II**

	List I		List II
(A)	Tranquilizers	(I)	Anti blood clotting
(B)	Aspirin	(II)	Salvarsan
(C)	Antibiotic	(III)	antidepressant drugs
(D)	Antiseptic	(IV)	soframicine

Choose the correct answer from the options given below:

Options

1. (A) – II, (B) – IV, (C) – I, (D) – III

2. (A) – IV, (B) – II, (C) – I, (D) – III

3. (A) – III, (B) – I, (C) – II, (D) – IV

4. (A) – II, (B) – I, (C) – III, (D) – IV

> Question Type : **MCQ**
> Question ID : **3666942530**
> Option 1 ID : **3666947978**
> Option 2 ID : **3666947980**
> Option 3 ID : **3666947977**
> Option 4 ID : **3666947979**
> Status : **Answered**
> Chosen Option : **2**

Q.49

Identify the incorrect option from the following:

Options

1.

2.

3.

4.

> Question Type : **MCQ**
> Question ID : **3666942525**
> Option 1 ID : **3666947958**
> Option 2 ID : **3666947959**
> Option 3 ID : **3666947960**
> Option 4 ID : **3666947957**
> Status : **Answered**
> Chosen Option : **2**

Q.50   In the following reaction, 'A' is

Options

1.

2.

3.

4.
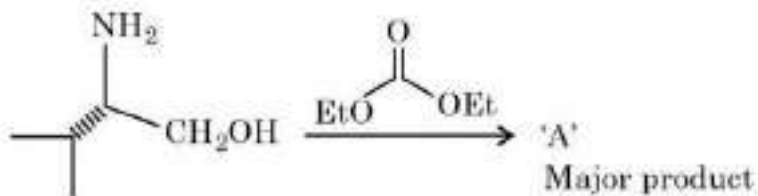
Question Type : **MCQ**
Question ID : **3666942526**
Option 1 ID : **3666947964**
Option 2 ID : **3666947961**
Option 3 ID : **3666947962**
Option 4 ID : **3666947963**
Status : **Not Answered**
Chosen Option : **--**

Section : **Chemistry Section B**

Q.51

The density of 3 M solution of NaCl is 1.0 g mL^{-1}. Molality of the solution is _____ × 10^{-2} m. (Nearest integer).

Given: Molar mass of Na and Cl is 23 and 35.5 g mol^{-1} respectively.

Given **--**
Answer :

Question Type : **SA**
Question ID : **3666942531**
Status : **Not Answered**

Q.52

A and B are two substances undergoing radioactive decay in a container. The half life of A is 15 min and that of B is 5 min. If the initial concentration of B is 4 times that of A and they both start decaying at the same time, how much time will it take for the concentration of both of them to be same? _____ min.

Given --
Answer :

Question Type : **SA**
Question ID : **3666942537**
Status : **Not Answered**

Q.53

Number of isomeric compounds with molecular formula $C_3H_{10}O$ which (i) do not dissolve in NaOH (ii) do not dissolve in HCl. (iii) do not give orange precipitate with 2,4-DNP (iv) on hydrogenation give identical compound with molecular formula $C_3H_{12}O$ is _____.

Given --
Answer :

Question Type : **SA**
Question ID : **3666942540**
Status : **Not Answered**

Q.54

25 mL of an aqueous solution of KCl was found to require 20 mL of 1 M $AgNO_3$ solution when titrated using K_2CrO_4 as an indicator. What is the depression in freezing point of KCl solution of the given concentration? _____(Nearest integer).

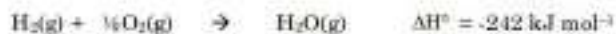(Given: $K_f = 2.0$ K kg mol^{-1})

Assume   1) 100% ionization and

            2) density of the aqueous solution as 1 g mL^{-1}

Given --
Answer :

Question Type : **SA**
Question ID : **3666942534**
Status : **Not Answered**

Q.55

At 25°C, the enthalpy of the following processes are given:

$$H_2(g) + O_2(g) \rightarrow 2OH(g) \qquad \Delta H^\circ = 78 \text{ kJ mol}^{-1}$$

$$H_2(g) + \tfrac{1}{2}O_2(g) \rightarrow H_2O(g) \qquad \Delta H^\circ = -242 \text{ kJ mol}^{-1}$$

$$H_2(g) \rightarrow 2H(g) \qquad \Delta H^\circ = 436 \text{ kJ mol}^{-1}$$

$$\tfrac{1}{2}O_2(g) \rightarrow O(g) \qquad \Delta H^\circ = 249 \text{ kJ mol}^{-1}$$

What would be the value of X for the following reaction? _____
(Nearest integer)

$$H_2O(g) \rightarrow H(g) + OH(g) \quad \Delta H^\circ = X \text{ kJ mol}^{-1}$$

Given --
Answer :

Question Type : **SA**
Question ID : **3666942533**
Status : **Not Answered**

Q.56

Electrons in a cathode ray tube have been emitted with a velocity of 1000 m s^{-1}. The number of following statements which is/are true about the emitted radiation is _____.

Given : $h = 6 \times 10^{-34}$ J s, $m_e = 9 \times 10^{-31}$ kg.

(A)   The deBroglie wavelength of the electron emitted is 666.67 nm.

(B)   The characteristic of electrons emitted depend upon the material of the electrodes of the cathode ray tube.

(C)   The cathode rays start from cathode and move towards anode.

(D)   The nature of the emitted electrons depends on the nature of the gas present in cathode ray tube.

Given --
Answer :

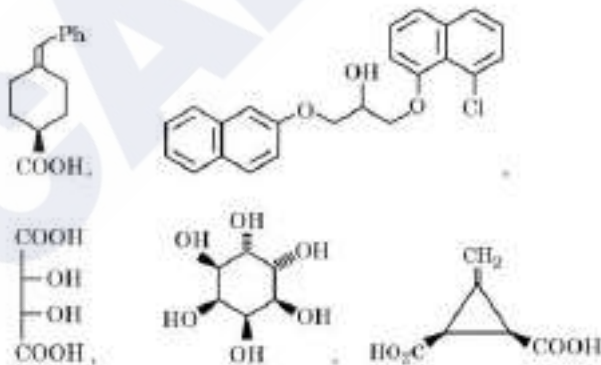Question Type : **SA**
Question ID : **3666942532**
Status : **Not Answered**

Q.57

The total number of chiral compound/s from the following is _____.

Given --
Answer :

Question Type : **SA**
Question ID : **3666942539**
Status : **Not Answered**

Q.58

Sum of oxidation states of bromine in bromic acid and perbromic acid is
_____.

Given --
Answer :

Question Type : **SA**
Question ID : **3666942538**
Status : **Not Answered**

Q.59

(i) $X(g) \rightleftharpoons Y(g) + Z(g)$ $K_{p1} = 3$

(ii) $A(g) \rightleftharpoons 2B(g)$ $K_{p2} = 1$
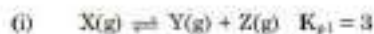
If the degree of dissociation and initial concentration of both the reactants $X(g)$ and $A(g)$ are equal, then the ratio of the total pressure at equilibrium

$\left(\dfrac{P_1}{p_2}\right)$ is equal to $x:1$. The value of x is _____ (Nearest integer)

Given --
Answer :

Question Type : **SA**
Question ID : **3666942535**
Status : **Not Answered**

Q.60

At what pH, given half cell MnO_4^- (0.1 M) | Mn^{2+} (0.001 M) will have electrode potential of 1.282 V? _____ (Nearest Integer)

Given $E^o_{MnO_4^-,Mn^{2+}} = 1.54V$, $\dfrac{2.303RT}{F} = 0.059V$

Given --
Answer :

Question Type : **SA**
Question ID : **3666942536**
Status : **Not Answered**

Section : **Mathematics Section A**

Q.61 Let S be the set of all solutions of the equation $\cos^{-1}(2x) - 2\cos^{-1}(\sqrt{1-x^2}) = \pi$, $x \in \left[-\frac{1}{2}, \frac{1}{2}\right]$. Then $\sum_{x \in S} 2\sin^{-1}(x^2 - 1)$ is equal to

Options

1. $\dfrac{-2\pi}{3}$

2. $\pi - 2\sin^{-1}\left(\dfrac{\sqrt{3}}{4}\right)$

3. 0

4. $\pi - \sin^{-1}\left(\dfrac{\sqrt{3}}{4}\right)$

Question Type : **MCQ**
Question ID : **3666942559**
Option 1 ID : **3666948064**
Option 2 ID : **3666948066**
Option 3 ID : **3666948063**
Option 4 ID : **3666948065**
Status : **Answered**
Chosen Option : **2**

Q.62 If $y = y(x)$ is the solution curve of the differential equation

$$\frac{dy}{dx} + y\tan x = x\sec x, \quad 0 \le x \le \frac{\pi}{3}, \quad y(0) = 1,$$

then $y\left(\dfrac{\pi}{6}\right)$ is equal to

Options

1. $\dfrac{\pi}{12} - \dfrac{\sqrt{3}}{2} \log_e\left(\dfrac{2}{e\sqrt{3}}\right)$

2. $\dfrac{\pi}{12} - \dfrac{\sqrt{3}}{2} \log_e\left(\dfrac{2\sqrt{3}}{e}\right)$

3. $\dfrac{\pi}{12} + \dfrac{\sqrt{3}}{2} \log_e\left(\dfrac{2}{e\sqrt{3}}\right)$

4. $\dfrac{\pi}{12} + \dfrac{\sqrt{3}}{2} \log_e\left(\dfrac{2\sqrt{3}}{e}\right)$

Question Type : **MCQ**
Question ID : **3666942554**
Option 1 ID : **3666948043**
Option 2 ID : **3666948044**
Option 3 ID : **3666948045**
Option 4 ID : **3666948046**
Status : **Not Answered**
Chosen Option : **--**

Q.63 The sum to 10 terms of the series

$$\frac{1}{1+1^2+1^4} + \frac{2}{1+2^2+2^4} + \frac{3}{1+3^2+3^4} + \cdots \text{ is}$$

Options

1. $\dfrac{55}{111}$

2. $\dfrac{58}{111}$

3. $\dfrac{59}{111}$

4. $\dfrac{56}{111}$

Question Type : **MCQ**

Question ID : **3666942548**

Option 1 ID : **3666948019**

Option 2 ID : **3666948021**

Option 3 ID : **3666948022**

Option 4 ID : **3666948020**

Status : **Not Answered**

Chosen Option : **--**

Q.64 The value of

$$\frac{1}{1!\,50!} + \frac{1}{3!\,48!} + \frac{1}{5!\,46!} + \cdots + \frac{1}{49!\,2!} + \frac{1}{51!\,1!} \text{ is :}$$

Options

1. $\dfrac{2^{51}}{50!}$

2. $\dfrac{2^{51}}{51!}$

3. $\dfrac{2^{50}}{51!}$

4. $\dfrac{2^{50}}{50!}$

Question Type : **MCQ**

Question ID : **3666942547**

Option 1 ID : **3666948018**

Option 2 ID : **3666948015**

Option 3 ID : **3666948016**

Option 4 ID : **3666948017**

Status : **Not Answered**

Chosen Option : **--**

Q.65

If the orthocentre of the triangle, whose vertices are $(1, 2)$, $(2, 3)$ and $(3, 1)$ is (α, β), then the quadratic equation whose roots are $\alpha + 4\beta$ and $4\alpha + \beta$, is

Options

1. $x^2 - 20x + 99 = 0$

2. $x^2 - 22x + 120 = 0$

3. $x^2 - 18x + 80 = 0$

4. $x^2 - 19x + 90 = 0$

Question Type : **MCQ**
Question ID : **3666942553**
Option 1 ID : **3666948040**
Option 2 ID : **3666948039**
Option 3 ID : **3666948041**
Option 4 ID : **3666948042**
Status : **Not Answered**
Chosen Option : **--**

Q.66

The negation of the expression $q \vee ((\sim q) \wedge p)$ is equivalent to

Options

1. $(\sim p) \vee q$

2. $(\sim p) \wedge (\sim q)$

3. $(\sim p) \vee (\sim q)$

4. $p \wedge (\sim q)$

Question Type : **MCQ**
Question ID : **3666942560**
Option 1 ID : **3666948070**
Option 2 ID : **3666948067**
Option 3 ID : **3666948068**
Option 4 ID : **3666948069**
Status : **Not Answered**
Chosen Option : **--**

Q.67

Let $f(x) = 2x + \tan^{-1} x$ and $g(x) = \log_e(\sqrt{1 + x^2} + x)$, $x \in [0, 3]$.

Then

Options

1. $\min f'(x) = 1 + \max g'(x)$

2. there exists $\hat{x} \in [0, 3]$ such that $f'(\hat{x}) < g'(\hat{x})$

3. $\max f(x) > \max g(x)$

4. there exist $0 < x_1 < x_2 < 3$ such that $f(x) < g(x), \forall x \in (x_1, x_2)$

Question Type : **MCQ**
Question ID : **3666942549**
Option 1 ID : **3666948024**
Option 2 ID : **3666948026**
Option 3 ID : **3666948023**
Option 4 ID : **3666948025**
Status : **Answered**
Chosen Option : **3**

Q.68 The area enclosed by the closed curve C given by the differential equation
$$\frac{dy}{dx} + \frac{x+a}{y-2} = 0, \quad y(1) = 0 \text{ is } 4\pi.$$

Let P and Q be the points of intersection of the curve C and the y-axis. If normals at P and Q on the curve C intersect x-axis at points R and S respectively, then the length of the line segment RS is

Options

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

  2. 2

  3. $\dfrac{4\sqrt{3}}{3}$

  4. $2\sqrt{3}$

Question Type : **MCQ**
Question ID : **3666942551**
Option 1 ID : **3666948033**
Option 2 ID : **3666948031**
Option 3 ID : **3666948034**
Option 4 ID : **3666948032**
Status : **Not Answered**
Chosen Option : **--**

Q.69 Let $S = \left\{ x : x \in \mathbb{R} \text{ and } (\sqrt{3} + \sqrt{2})^{x^2-4} + (\sqrt{3} - \sqrt{2})^{x^2-4} = 10 \right\}$.

Then $n(S)$ is equal to

Options 1. 0

  2. 6

  3. 2

  4. 4

Question Type : **MCQ**
Question ID : **3666942543**
Option 1 ID : **3666947999**
Option 2 ID : **3666948002**
Option 3 ID : **3666948001**
Option 4 ID : **3666948000**
Status : **Answered**
Chosen Option : **2**

Q.70 Let the image of the point $P(2, -1, 3)$ in the plane $x + 2y - z = 0$ be Q. Then the distance of the plane $3x + 2y + z + 29 = 0$ from the point Q is

Options

1. $\dfrac{22\sqrt{2}}{7}$

2. $3\sqrt{14}$

3. $\dfrac{24\sqrt{2}}{7}$

4. $2\sqrt{14}$

Question Type : **MCQ**
Question ID : **3666942555**
Option 1 ID : **3666948047**
Option 2 ID : **3666948049**
Option 3 ID : **3666948048**
Option 4 ID : **3666948050**
Status : **Answered**
Chosen Option : **1**

Q.71 $\lim\limits_{n \to \infty} \left[\dfrac{1}{1+n} + \dfrac{1}{2+n} + \dfrac{1}{3+n} + \ldots + \dfrac{1}{2n} \right]$ is equal to

Options

1. $\log_e \left(\dfrac{3}{2} \right)$

2. $\log_e 2$

3. $\log_e \left(\dfrac{2}{3} \right)$

4. 0

Question Type : **MCQ**
Question ID : **3666942550**
Option 1 ID : **3666948029**
Option 2 ID : **3666948030**
Option 3 ID : **3666948028**
Option 4 ID : **3666948027**
Status : **Answered**
Chosen Option : **3**

Q.72

Let $f(x) = \begin{vmatrix} 1+\sin^2 x & \cos^2 x & \sin 2x \\ \sin^2 x & 1+\cos^2 x & \sin 2x \\ \sin^2 x & \cos^2 x & 1+\sin 2x \end{vmatrix}$, $x \in \left[\frac{\pi}{6}, \frac{\pi}{3} \right]$. If α and β

respectively are the maximum and the minimum values of f, then

Options

1. $\alpha^2 + \beta^2 = \dfrac{9}{2}$

2. $\alpha^2 - \beta^2 = 4\sqrt{3}$

3. $\beta^2 + 2\sqrt{\alpha} = \dfrac{19}{4}$

4. $\beta^2 - 2\sqrt{\alpha} = \dfrac{19}{4}$

Question Type : **MCQ**
Question ID : **3666942544**
Option 1 ID : **3666948005**
Option 2 ID : **3666948003**
Option 3 ID : **3666948006**
Option 4 ID : **3666948004**
Status : **Not Answered**
Chosen Option : **--**

Q.73

The combined equation of the two lines $ax + by + c = 0$ and $a'x + b'y + c' = 0$
can be written as $(ax + by + c)(a'x + b'y + c') = 0$.

The equation of the angle bisectors of the lines represented by the equation
$2x^2 + xy - 3y^2 = 0$ is

Options

1. $x^2 - y^2 - 10xy = 0$

2. $3x^2 + xy - 2y^2 = 0$

3. $3x^2 + 5xy + 2y^2 = 0$

4. $x^2 - y^2 + 10xy = 0$

Question Type : **MCQ**
Question ID : **3666942552**
Option 1 ID : **3666948037**
Option 2 ID : **3666948036**
Option 3 ID : **3666948035**
Option 4 ID : **3666948038**
Status : **Answered**
Chosen Option : **1**

Q.74 Let R be a relation on $\mathbb{R}$, given by

$R = \left\{(a, b) : 3a - 3b + \sqrt{7} \text{ is an irrational number}\right\}$.

Then R is

Options 1. reflexive and transitive but not symmetric

2. an equivalence relation

3. reflexive but neither symmetric nor transitive

4. reflexive and symmetric but not transitive

Question Type : **MCQ**

Question ID : **3666942541**

Option 1 ID : **3666947993**

Option 2 ID : **3666947994**

Option 3 ID : **3666947991**

Option 4 ID : **3666947992**

Status : **Answered**

Chosen Option : **2**

Q.75 The mean and variance of 5 observations are 5 and 8 respectively. If 3 observations are 1, 3, 5, then the sum of cubes of the remaining two observations is

Options 1. 1456

2. 1072

3. 1216

4. 1792

Question Type : **MCQ**

Question ID : **3666942558**

Option 1 ID : **3666948060**

Option 2 ID : **3666948062**

Option 3 ID : **3666948061**

Option 4 ID : **3666948059**

Status : **Not Answered**

Chosen Option : **--**

Q.76 In a binomial distribution $B(n, p)$, the sum and the product of the mean and the variance are 5 and 6 respectively, then $6(n + p - q)$ is equal to

Options 1. 50

2. 51

3. 52

4. 53

Question Type : **MCQ**

Question ID : **3666942545**

Option 1 ID : **3666948007**

Option 2 ID : **3666948008**

Option 3 ID : **3666948009**

Option 4 ID : **3666948010**

Status : **Not Answered**

Chosen Option : **--**

Q.77

The shortest distance between the lines

$$\frac{x-5}{1} = \frac{y-2}{2} = \frac{z-4}{-3} \quad \text{and} \quad \frac{x+3}{1} = \frac{y+5}{4} = \frac{z-1}{-5} \text{ is}$$

Options

1. $5\sqrt{3}$

2. $4\sqrt{3}$

3. $7\sqrt{3}$

4. $6\sqrt{3}$

Question Type : **MCQ**

Question ID : **3666942556**

Option 1 ID : **3666948052**

Option 2 ID : **3666948051**

Option 3 ID : **3666948054**

Option 4 ID : **3666948053**

Status : **Answered**

Chosen Option : **1**

Q.78

Let S denote the set of all real values of λ such that the system of equations

$\lambda x + y + z = 1$

$x + \lambda y + z = 1$

$x + y + \lambda z = 1$

is inconsistent, then $\sum_{\lambda \in S}\left(|\lambda|^2 + |\lambda|\right)$ is equal to

Options

1. 12

2. 6

3. 4

4. 2

Question Type : **MCQ**

Question ID : **3666942546**

Option 1 ID : **3666948011**

Option 2 ID : **3666948012**

Option 3 ID : **3666948014**

Option 4 ID : **3666948013**

Status : **Not Answered**

Chosen Option : **--**

Q.79 For a triangle ABC, the value of $\cos 2A + \cos 2B + \cos 2C$ is least. If its inradius is 3 and incentre is M, then which of the following is NOT correct?

Options

1. $\sin 2A + \sin 2B + \sin 2C = \sin A + \sin B + \sin C$

2. perimeter of $\triangle ABC$ is $18\sqrt{3}$

3. $\overrightarrow{MA} \cdot \overrightarrow{MB} = -18$

4. area of $\triangle ABC$ is $\dfrac{27\sqrt{3}}{2}$

Question Type : **MCQ**
Question ID : **3666942557**
Option 1 ID : **3666948058**
Option 2 ID : **3666948057**
Option 3 ID : **3666948056**
Option 4 ID : **3666948055**
Status : **Not Answered**
Chosen Option : **--**

Q.80 If the center and radius of the circle $\left| \dfrac{z-2}{z-3} \right| = 2$ are respectively (α, β) and γ, then $3(\alpha + \beta + \gamma)$ is equal to

Options

1. 9

2. 10

3. 11

4. 12

Question Type : **MCQ**
Question ID : **3666942542**
Option 1 ID : **3666947998**
Option 2 ID : **3666947995**
Option 3 ID : **3666947997**
Option 4 ID : **3666947996**
Status : **Not Answered**
Chosen Option : **--**

Section : **Mathematics Section B**

Q.81 The number of words, with or without meaning, that can be formed using all the letters of the word ASSASSINATION so that the vowels occur together, is _____.

Given Answer : **--**

Question Type : **SA**
Question ID : **3666942562**
Status : **Not Answered**

Q.82 Let $\vec{v} = \alpha\hat{i} + 2\hat{j} - 3\hat{k}$, $\vec{w} = 2\alpha\hat{i} + \hat{j} - \hat{k}$ and $\vec{u}$ be a vector such that $|\vec{u}| = \alpha > 0$. If the minimum value of the scalar triple product $[\vec{u} \ \vec{v} \ \vec{w}]$ is $-\alpha\sqrt{3401}$, and $|\hat{u} \cdot \hat{i}|^2 = \dfrac{m}{n}$ where m and n are coprime natural numbers, then $m+n$ is equal to _____.

Given --
Answer :

Question Type : **SA**

Question ID : **3666942570**

Status : **Not Answered**

Q.83 If $f(x) = x^2 + g'(1)x + g''(2)$ and $g(x) = f(1)x^2 + xf'(x) + f''(x)$, then the value of $f(4) - g(4)$ is equal to _____.

Given --
Answer :

Question Type : **SA**

Question ID : **3666942561**

Status : **Not Answered**

Q.84 If $\int_0^1 (x^{21} + x^{14} + x^7)(2x^{14} + 3x^7 + 6)^{1/7} dx = \dfrac{1}{l}(11)^{m/n}$ where $l, m, n \in \mathbb{N}$, m and n are coprime then $l + m + n$ is equal to _____.

Given --
Answer :

Question Type : **SA**

Question ID : **3666942565**

Status : **Not Answered**

Q.85 Let $a_1 = 8, a_2, a_3, \ldots, a_n$ be an A.P. If the sum of its first four terms is 50 and the sum of its last four terms is 170, then the product of its middle two terms is _____.

Given --
Answer :

Question Type : **SA**

Question ID : **3666942566**

Status : **Not Answered**

Q.86 The remainder, when $19^{200} + 23^{200}$ is divided by 49, is _____.

Given --
Answer :

Question Type : **SA**

Question ID : **3666942564**

Status : **Not Answered**

Q.87 Let A be the area bounded by the curve $y = x|x-3|$, the x-axis and the ordinates $x = -1$ and $x = 2$. Then $12\,A$ is equal to _____

Given --
Answer :

Question Type : **SA**

Question ID : **3666942567**

Status : **Not Answered**

Q.88 $A(2, 6, 2)$, $B(-4, 0, \lambda)$, $C(2, 3, -1)$ and $D(4, 5, 0)$, $|\lambda| \le 5$ are the vertices of a quadrilateral $ABCD$. If its area is 18 square units, then $5 - 6\lambda$ is equal to _____.

Given --
Answer :

Question Type : **SA**

Question ID : **3666942569**

Status : **Not Answered**

Q.89 The number of 3-digit numbers, that are divisible by either 2 or 3 but not divisible by 7, is _____.

Given --
Answer :

Question Type : **SA**

Question ID : **3666942563**

Status : **Not Answered**

Q.90 Let $f : \mathbb{R} \to \mathbb{R}$ be a differentiable function such that $f'(x) + f(x) = \int_0^2 f(t)\,dt$.

If $f(0) = e^{-2}$, then $2f(0) - f(2)$ is equal to _____

Given --
Answer :

Question Type : **SA**

Question ID : **3666942568**

Status : **Not Answered**