

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

Application No	
Candidate Name	
Roll No	
Test Date	25/01/2023
Test Time	3:00 PM - 6:00 PM
Subject	B TECH

Section : Physics Section A

Q.1 According to law of equipartition of energy the molar specific heat of a diatomic gas at constant volume where the molecule has one additional vibrational mode is:-

- Options**
1. $\frac{3}{2}R$
 2. $\frac{9}{2}R$
 3. $\frac{5}{2}R$
 4. $\frac{7}{2}R$

Question Type : MCQ

Question ID : 7155051623

Option 1 ID : 7155054872

Option 2 ID : 7155054869

Option 3 ID : 7155054871

Option 4 ID : 7155054870

Status : Answered

Chosen Option : 4

Q.2 The light rays from an object have been reflected towards an observer from a standard flat mirror, the image observed by the observer are:-

- A. Real
- B. Erect
- C. Smaller in size than object
- D. Laterally inverted

Choose the *most appropriate* answer from the options given below:

- Options**
1. A, C, and D Only
 2. A and D Only
 3. B and D Only
 4. B and C Only

Question Type : MCQ

Question ID : 7155051629

Option 1 ID : 7155054896

Option 2 ID : 7155054894

Option 3 ID : 7155054893

Option 4 ID : 7155054895

Status : Not Attempted and Marked For Review

Chosen Option : --

Q.3 A particle executes simple harmonic motion between $x = -A$ and $x = +A$. If time taken by particle to go from $x = 0$ to $\frac{A}{2}$ is 2 s; then time taken by particle in going from $x = \frac{A}{2}$ to A is

- Options
1. 3 s
 2. 1.5 s
 3. 2 s
 4. 4 s

Question Type : MCQ

Question ID : 7155051624

Option 1 ID : 7155054874

Option 2 ID : 7155054873

Option 3 ID : 7155054876

Option 4 ID : 7155054875

Status : Not Attempted and Marked For Review

Chosen Option : --

Q.4 Match List I with List II

LIST I		LIST II	
A.	Isothermal Process	I.	Work done by the gas decreases internal energy
B.	Adiabatic Process	II.	No change in internal energy
C.	Isochoric Process	III.	The heat absorbed goes partly to increase internal energy and partly to do work
D.	Isobaric Process	IV.	No work is done on or by the gas

Choose the correct answer from the options given below:

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

Question Type : MCQ

Question ID : 7155051622

Option 1 ID : 7155054867

Option 2 ID : 7155054868

Option 3 ID : 7155054865

Option 4 ID : 7155054866

Status : Answered

Chosen Option : 2

Q.5 The resistance of a wire is 5 Ω . It's new resistance in ohm if stretched to 5 times of it's original length will be :

- Options
1. 5
 2. 625
 3. 125
 4. 25

Question Type : MCQ

Question ID : 7155051633

Option 1 ID : 7155054911

Option 2 ID : 7155054912

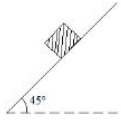
Option 3 ID : 7155054910

Option 4 ID : 7155054909

Status : Answered

Chosen Option : 2

- Q.6** Consider a block kept on an inclined plane (inclined at 45°) as shown in the figure. If the force required to just push it up the incline is 2 times the force required to just prevent it from sliding down, the coefficient of friction between the block and inclined plane (μ) is equal to :



- Options**
1. 0.50
 2. 0.33
 3. 0.60
 4. 0.25

Question Type : MCQ

Question ID : 7155051638

Option 1 ID : 7155054931

Option 2 ID : 7155054930

Option 3 ID : 7155054932

Option 4 ID : 7155054929

Status : Not Answered

Chosen Option : --

- Q.7** Match List I with List II

LIST I		LIST II	
A.	Young's Modulus (Y)	I.	$[ML^{-1} T^{-1}]$
B.	Co-efficient of Viscosity (η)	II.	$[ML^2 T^{-1}]$
C.	Planck's Constant (h)	III.	$[ML^{-1} T^{-2}]$
D.	Work Function (ϕ)	IV.	$[ML^2 T^{-2}]$

Choose the correct answer from the options given below:

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

Question Type : MCQ

Question ID : 7155051621

Option 1 ID : 7155054861

Option 2 ID : 7155054863

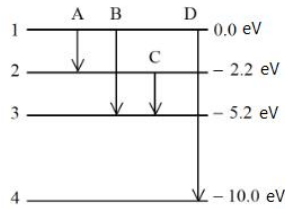
Option 3 ID : 7155054864

Option 4 ID : 7155054862

Status : Answered

Chosen Option : 3

Q.8 The energy levels of an atom is shown in figure.



Which one of these transitions will result in the emission of a photon of wavelength 124.1nm ?

Given ($h = 6.62 \times 10^{-34}$ Js)

- Options**
1. **C**
 2. **B**
 3. **A**
 4. **D**

Question Type : **MCQ**
 Question ID : **7155051627**
 Option 1 ID : **7155054887**
 Option 2 ID : **7155054886**
 Option 3 ID : **7155054885**
 Option 4 ID : **7155054888**
 Status : **Answered**
 Chosen Option : **4**

Q.9 Given below are two statements :

Statement I: Stopping potential in photoelectric effect does not depend on the power of the light source.

Statement II: For a given metal, the maximum kinetic energy of the photoelectron depends on the wavelength of the incident light.

In the light of above statements, choose the most appropriate answer from the options given below

- Options**
1. **Both Statement I and Statement II are incorrect**
 2. **Statement I is incorrect but statement II is correct**
 3. **Both Statement I and statement II are correct**
 4. **Statement I is correct but statement II is incorrect**

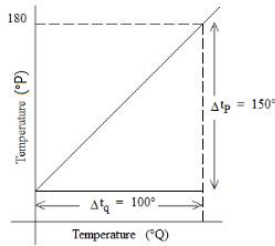
Question Type : **MCQ**
 Question ID : **7155051628**
 Option 1 ID : **7155054890**
 Option 2 ID : **7155054892**
 Option 3 ID : **7155054889**
 Option 4 ID : **7155054891**
 Status : **Answered**
 Chosen Option : **3**

Q.10 A wire of length 1m moving with velocity 8 m/s at right angles to a magnetic field of 2T. The magnitude of induced emf, between the ends of wire will be _____

- Options**
1. **16 V**
 2. **8 V**
 3. **12 V**
 4. **20 V**

Question Type : **MCQ**
 Question ID : **7155051631**
 Option 1 ID : **7155054902**
 Option 2 ID : **7155054904**
 Option 3 ID : **7155054903**
 Option 4 ID : **7155054901**
 Status : **Answered**
 Chosen Option : **1**

- Q.11** The graph between two temperature scales P and Q is shown in the figure. Between upper fixed point and lower fixed point there are 150 equal divisions of scale P and 100 divisions on scale Q. The relationship for conversion between the two scales is given by:-



- Options**
1. $\frac{t_Q}{100} = \frac{t_P - 30}{150}$
 2. $\frac{t_Q}{150} = \frac{t_P - 180}{100}$
 3. $\frac{t_P}{100} = \frac{t_Q - 180}{150}$
 4. $\frac{t_P}{180} = \frac{t_Q - 40}{100}$

Question Type : MCQ

Question ID : 7155051635

Option 1 ID : 7155054918

Option 2 ID : 7155054917

Option 3 ID : 7155054919

Option 4 ID : 7155054920

Status : Answered

Chosen Option : 1

- Q.12** Every planet revolves around the sun in an elliptical orbit:-

- A. The force acting on a planet is inversely proportional to square of distance from sun.
- B. Force acting on planet is inversely proportional to product of the masses of the planet and the sun.
- C. The Centripetal force acting on the planet is directed away from the sun.
- D. The square of time period of revolution of planet around sun is directly proportional to cube of semi-major axis of elliptical orbit.

Choose the correct answer from the options given below:

- Options**
1. B and C only
 2. A and C Only
 3. A and D only
 4. C and D only

Question Type : MCQ

Question ID : 7155051637

Option 1 ID : 7155054927

Option 2 ID : 7155054925

Option 3 ID : 7155054926

Option 4 ID : 7155054928

Status : Answered

Chosen Option : 2

Q.13 Match List I with List II

LIST I		LIST II	
A.	Troposphere	I.	Approximate 65-75 km over Earth's surface
B.	E- Part of Stratosphere	II.	Approximate 300 km over Earth's surface
C.	F ₂ - Part of Thermosphere	III.	Approximate 10 km over Earth's surface
D.	D- Part of Stratosphere	IV.	Approximate 100 km over Earth's surface

Choose the correct answer from the options given below:

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

Question Type : MCQ

Question ID : 7155051625

Option 1 ID : 7155054879

Option 2 ID : 7155054878

Option 3 ID : 7155054877

Option 4 ID : 7155054880

Status : Answered

Chosen Option : 2

Q.14 A body of mass is taken from earth surface to the height h equal to twice the radius of earth (R_e), the increase in potential energy will be:

(g = acceleration due to gravity on the surface of Earth)

- Options
1. $3 mgR_e$
 2. $\frac{1}{3} mgR_e$
 3. $\frac{1}{2} mgR_e$
 4. $\frac{2}{3} mgR_e$

Question Type : MCQ

Question ID : 7155051636

Option 1 ID : 7155054924

Option 2 ID : 7155054923

Option 3 ID : 7155054922

Option 4 ID : 7155054921

Status : Answered

Chosen Option : 2

Q.15 For a moving coil galvanometer, the deflection in the coil is 0.05 rad when a current of 10 mA is passed through it. If the torsional constant of suspension wire is $4.0 \times 10^{-5} \text{ N m rad}^{-1}$, the magnetic field is 0.01 T and the number of turns in the coil is 200, the area of each turn (in cm^2) is :

- Options
1. 1.0
 2. 2.0
 3. 1.5
 4. 0.5

Question Type : MCQ

Question ID : 7155051632

Option 1 ID : 7155054906

Option 2 ID : 7155054908

Option 3 ID : 7155054907

Option 4 ID : 7155054905

Status : Answered

Chosen Option : 1

Q.16 **Statement I:** When a Si sample is doped with Boron, it becomes P type and when doped by Arsenic it becomes N-type semi conductor such that P-type has excess holes and N-type has excess electrons.

Statement II: When such P-type and N-type semi-conductors, are fused to make a junction, a current will automatically flow which can be detected with an externally connected ammeter.

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

- Options
1. Both Statement I and Statement II are incorrect
 2. Both Statement I and statement II are correct
 3. Statement I is incorrect but statement II is correct
 4. Statement I is correct but statement II is incorrect

Question Type : MCQ

Question ID : 7155051626

Option 1 ID : 7155054882

Option 2 ID : 7155054881

Option 3 ID : 7155054884

Option 4 ID : 7155054883

Status : Answered

Chosen Option : 2

Q.17 A point charge of $10 \mu\text{C}$ is placed at the origin. At what location on the X-axis should a point charge of $40 \mu\text{C}$ be placed so that the net electric field is zero at $x = 2\text{cm}$ on the X-axis?

- Options
1. $x = -4 \text{ cm}$
 2. $x = 8 \text{ cm}$
 3. $x = 6 \text{ cm}$
 4. $x = 4 \text{ cm}$

Question Type : MCQ

Question ID : 7155051634

Option 1 ID : 7155054916

Option 2 ID : 7155054915

Option 3 ID : 7155054914

Option 4 ID : 7155054913

Status : Answered

Chosen Option : 3

Q.18 The distance travelled by a particle is related to time t as $x = 4t^2$. The velocity of the particle at $t=5s$ is:-

- Options
1. $20ms^{-1}$
 2. $40ms^{-1}$
 3. $8ms^{-1}$
 4. $25ms^{-1}$

Question Type : **MCQ**

Question ID : **7155051639**

Option 1 ID : **7155054935**

Option 2 ID : **7155054934**

Option 3 ID : **7155054933**

Option 4 ID : **7155054936**

Status : **Answered**

Chosen Option : **2**

Q.19 Two objects are projected with same velocity ' u ' however at different angles α and β with the horizontal. If $\alpha + \beta = 90^\circ$, the ratio of horizontal range of the first object to the 2nd object will be :

- Options
1. **1:1**
 2. 1:2
 3. 2:1
 4. 4:1

Question Type : **MCQ**

Question ID : **7155051640**

Option 1 ID : **7155054937**

Option 2 ID : **7155054940**

Option 3 ID : **7155054938**

Option 4 ID : **7155054939**

Status : **Answered**

Chosen Option : **1**

Q.20 Match List I with List II

LIST I		LIST II	
A.	Gauss's Law in Electrostatics	I.	$\oint \vec{E} \cdot d\vec{l} = -\frac{d\phi_B}{dt}$
B.	Faraday's Law	II.	$\oint \vec{B} \cdot d\vec{A} = 0$
C.	Gauss's Law in Magnetism	III.	$\oint \vec{B} \cdot d\vec{l} = \mu_0 i_c + \mu_0 \epsilon_0 \frac{d\phi_E}{dt}$
D.	Ampere-Maxwell Law	IV.	$\oint \vec{E} \cdot d\vec{s} = \frac{q}{\epsilon_0}$

Choose the correct answer from the options given below:

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

Question Type : MCQ

Question ID : 7155051630

Option 1 ID : 7155054898

Option 2 ID : 7155054897

Option 3 ID : 7155054899

Option 4 ID : 7155054900

Status : Answered

Chosen Option : 4

Section : Physics Section B

- Q.21** A series LCR circuit is connected to an AC source of 220 V, 50 Hz. The circuit contains a resistance $R = 80\Omega$, an inductor of inductive reactance $X_L = 70\Omega$, and a capacitor of capacitive reactance $X_C = 130\Omega$. The power factor of circuit is $\frac{x}{10}$. The value of x is :

Given --
Answer :

Question Type : SA

Question ID : 7155051643

Status : Not Answered

- Q.22** Two long parallel wires carrying currents 8A and 15A in opposite directions are placed at a distance of 7cm from each other. A point P is at equidistant from both the wires such that the lines joining the point P to the wires are perpendicular to each other. The magnitude of magnetic field at P is _____ $\times 10^{-6}$ T.

(Given : $\sqrt{2} = 1.4$)

Given --
Answer :

Question Type : SA

Question ID : 7155051644

Status : Not Answered

Q.23 A body of mass 1 kg collides head on elastically with a stationary body of mass 3kg. After collision, the smaller body reverses its direction of motion and moves with a speed of 2m/s. The initial speed of the smaller body before collision is _____ ms^{-1} .

Given --
Answer :

Question Type : SA
Question ID : 7155051647
Status : Not Answered

Q.24 A nucleus disintegrates into two smaller parts, which have their velocities in the ratio 3:2. The ratio of their nuclear sizes will be $\left(\frac{x}{3}\right)^{\frac{1}{3}}$. The value of 'x' is:-

Given --
Answer :

Question Type : SA
Question ID : 7155051641
Status : Not Answered

Q.25 If a solid sphere of mass 5kg and a disc of mass 4kg have the same radius. Then the ratio of moment of inertia of the disc about a tangent in its plane to the moment of inertia of the sphere about its tangent will be $\frac{x}{7}$. The the value of x is _____

Given --
Answer :

Question Type : SA
Question ID : 7155051648
Status : Not Answered

Q.26 A capacitor has capacitance $5\mu\text{F}$ when it's parallel plates are separated by air medium of thickness d . A slab of material of dielectric constant 1.5 having area equal to that of plates but thickness $\frac{d}{2}$ is inserted between the plates. Capacitance of the capacitor in the presence of slab will be _____ μF .

Given --
Answer :

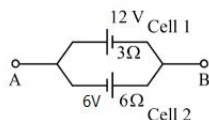
Question Type : SA
Question ID : 7155051646
Status : Not Answered

Q.27 A train blowing a whistle of frequency 320 Hz approaches an observer standing on the platform at a speed of 66 m/s. The frequency observed by the observer will be (given speed of sound = 330 ms^{-1}) _____ Hz.

Given --
Answer :

Question Type : SA
Question ID : 7155051650
Status : Not Answered

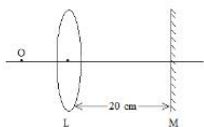
- Q.28** Two cells are connected between points A and B as shown. Cell 1 has emf of 12 V and internal resistance of 3Ω . Cell 2 has emf of 6V and internal resistance of 6Ω . An external resistor R of 4Ω is connected across A and B. The current flowing through R will be _____ A.



Given --
Answer :

Question Type : SA
Question ID : 7155051645
Status : Not Answered

- Q.29** An object is placed on the principal axis of convex lens of focal length 10cm as shown. A plane mirror is placed on the other side of lens at a distance of 20 cm. The image produced by the plane mirror is 5cm inside the mirror. The distance of the object from the lens is _____ cm.



Given --
Answer :

Question Type : SA
Question ID : 7155051642
Status : Not Answered

- Q.30** A spherical drop of liquid splits into 1000 identical spherical drops. If u_i is the surface energy of the original drop and u_f is the total surface energy of the resulting drops, the (ignoring evaporation),

$$\frac{u_f}{u_i} = \left(\frac{10}{x}\right). \text{ Then value of } x \text{ is } \underline{\hspace{2cm}} :$$

Given --
Answer :

Question Type : SA
Question ID : 7155051649
Status : Not Answered

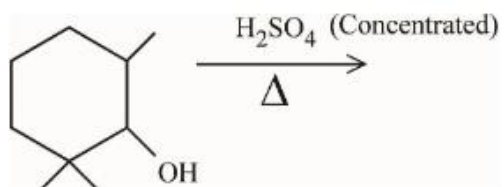
Section : Chemistry Section A

- Q.31** Potassium dichromate acts as a strong oxidizing agent in acidic solution. During this process, the oxidation state changes from

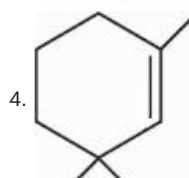
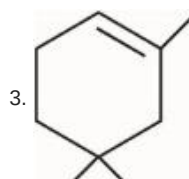
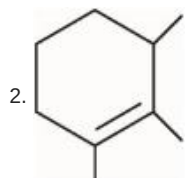
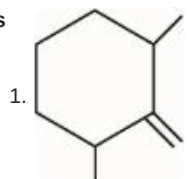
- Options**
1. + 6 to + 3
 2. + 6 to + 2
 3. + 3 to + 1
 4. + 2 to + 1

Question Type : MCQ
Question ID : 7155051659
Option 1 ID : 7155054985
Option 2 ID : 7155054986
Option 3 ID : 7155054983
Option 4 ID : 7155054984
Status : Not Attempted and Marked For Review
Chosen Option : --

Q.32 Find out the major product from the following reaction.



Options



Question Type : MCQ

Question ID : 7155051665

Option 1 ID : 7155055009

Option 2 ID : 7155055008

Option 3 ID : 7155055010

Option 4 ID : 7155055007

Status : Not Answered

Chosen Option : --

Q.33 Match List I with List II

LIST I		LIST II	
Coordination entity		Wavelength of light absorbed in nm	
A.	$[\text{CoCl}(\text{NH}_3)_5]^{2+}$	I.	310
B.	$[\text{Co}(\text{NH}_3)_6]^{3+}$	II.	475
C.	$[\text{Co}(\text{CN})_6]^{3-}$	III.	535
D.	$[\text{Cu}(\text{H}_2\text{O})_4]^{2+}$	IV.	600

Choose the correct answer from the options given below:

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

Question Type : MCQ

Question ID : 7155051660

Option 1 ID : 7155054988

Option 2 ID : 7155054989

Option 3 ID : 7155054990

Option 4 ID : 7155054987

Status : Answered

Chosen Option : 4

Q.34 Statement I : Dipole moment is a vector quantity and by convention it is depicted by a small arrow with tail on the negative centre and head pointing towards the positive centre.

Statement II : The crossed arrow of the dipole moment symbolizes the direction of the shift of charges in the molecules.

In the light of the above statements, choose the most appropriate answer from the options given below:

- Options
1. Both Statement I and Statement II are correct
 2. Statement I is correct but Statement II is incorrect
 3. Both Statement I and Statement II are incorrect
 4. Statement I is incorrect but Statement II is correct

Question Type : MCQ

Question ID : 7155051652

Option 1 ID : 7155054955

Option 2 ID : 7155054957

Option 3 ID : 7155054956

Option 4 ID : 7155054958

Status : Not Attempted and Marked For Review

Chosen Option : --

Q.35 Which one among the following metals is the weakest reducing agent?

- Options
1. Rb
 2. Li
 3. K
 4. Na

Question Type : MCQ

Question ID : 7155051657

Option 1 ID : 7155054978

Option 2 ID : 7155054975

Option 3 ID : 7155054977

Option 4 ID : 7155054976

Status : Answered

Chosen Option : 1

Q.36 Match List I with List II

LIST I		LIST II	
A.	Cobalt catalyst	I.	(H ₂ + Cl ₂) production
B.	Syngas	II.	Water gas production
C.	Nickel catalyst	III.	Coal gasification
D.	Brine solution	IV.	Methanol production

Choose the correct answer from the options given below:

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

Question Type : MCQ

Question ID : 7155051656

Option 1 ID : 7155054972

Option 2 ID : 7155054973

Option 3 ID : 7155054974

Option 4 ID : 7155054971

Status : Not Attempted and Marked For Review

Chosen Option : --

Q.37 Which of the following represents the correct order of metallic character of the given elements ?

- Options
1. Be < Si < K < Mg
 2. K < Mg < Be < Si
 3. Be < Si < Mg < K
 4. Si < Be < Mg < K

Question Type : MCQ

Question ID : 7155051654

Option 1 ID : 7155054966

Option 2 ID : 7155054964

Option 3 ID : 7155054965

Option 4 ID : 7155054963

Status : Not Answered

Chosen Option : --

Q.38 Given below are two statements:

Statement I : In froth floatation method a rotating paddle agitates the mixture to drive air out of it.

Statement II : Iron pyrites are generally avoided for extraction of iron due to environmental reasons.

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 false
 2. Statement I is true but Statement II is false
 3. Both Statement I and Statement II are true
 4. Statement I is false but Statement II is true

Question Type : **MCQ**

Question ID : **7155051655**

Option 1 ID : **7155054968**

Option 2 ID : **7155054969**

Option 3 ID : **7155054967**

Option 4 ID : **7155054970**

Status : **Not Attempted and Marked For Review**

Chosen Option : --

Q.39 Given below are two statements, one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A : The alkali metals and their salts impart characteristic colour to reducing flame.

Reason R : Alkali metals can be detected using flame tests.

In the light of the above statements, choose the most appropriate answer from the options given below

- Options**
1. A is not correct but R is correct
 2. Both A and R are correct and R is the correct explanation of A
 3. Both A and R are correct but R is NOT the correct explanation of A
 4. A is correct but R is not correct

Question Type : **MCQ**

Question ID : **7155051662**

Option 1 ID : **7155054998**

Option 2 ID : **7155054995**

Option 3 ID : **7155054996**

Option 4 ID : **7155054997**

Status : **Answered**

Chosen Option : **2**

Q.40 Match List I with List II

LIST I (Name of polymer)		LIST II (Uses)	
A.	Glyptal	I.	Flexible pipes
B.	Neoprene	II.	Synthetic wool
C.	Acrlan	III.	Paints and Lacquers
D.	LDP	IV.	Gaskets

Choose the correct answer from the options given below:

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

Question Type : MCQ

Question ID : 7155051669

Option 1 ID : 7155055026

Option 2 ID : 7155055024

Option 3 ID : 7155055025

Option 4 ID : 7155055023

Status : Answered

Chosen Option : 2

Q.41 What is the mass ratio of ethylene glycol ($C_2H_6O_2$, molar mass = 62 g/mol) required for making 500 g of 0.25 molal aqueous solution and 250 mL of 0.25 molal aqueous solution?

- Options
1. 3:1
 2. 1:2
 3. 2:1
 4. 1:1

Question Type : MCQ

Question ID : 7155051651

Option 1 ID : 7155054954

Option 2 ID : 7155054951

Option 3 ID : 7155054953

Option 4 ID : 7155054952

Status : Answered

Chosen Option : 3

Q.42 Match List I with List II

LIST I (Amines)		LIST II (pK_b)	
A.	Aniline	I.	3.25
B.	Ethanamine	II.	3.00
C.	N-Ethylethanamine	III.	9.38
D.	N, N-Diethylethanamine	IV.	3.29

Choose the correct answer from the options given below:

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

Question Type : MCQ

Question ID : 7155051667

Option 1 ID : 7155055015

Option 2 ID : 7155055016

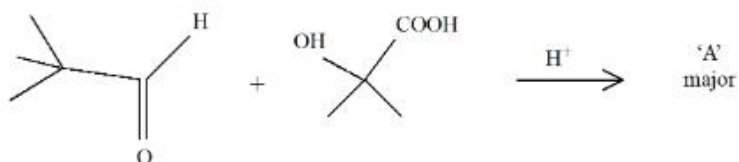
Option 3 ID : 7155055017

Option 4 ID : 7155055018

Status : Answered

Chosen Option : 2

Q.43 'A' in the given reaction is



Options

- 1.
- 2.
- 3.
- 4.

Question Type : **MCQ**

Question ID : **7155051666**

Option 1 ID : **7155055013**

Option 2 ID : **7155055012**

Option 3 ID : **7155055014**

Option 4 ID : **7155055011**

Status : **Not Answered**

Chosen Option : --

Q.44 Match List I with List II

LIST I		LIST II	
Isomeric pairs		Type of isomers	
A.	Propanamine and N-Methylethanamine	I.	Metamers
B.	Hexan-2-one and Hexan-3-one	II.	Positional isomers
C.	Ethanamide and Hydroxyethanimine	III.	Functional isomers
D.	o-nitrophenol and p-nitrophenol	IV.	Tautomers

Choose the correct answer from the options given below:

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

Question Type : MCQ

Question ID : 7155051664

Option 1 ID : 7155055004

Option 2 ID : 7155055003

Option 3 ID : 7155055005

Option 4 ID : 7155055006

Status : Answered

Chosen Option : 1

Q.45 Given below are two statements, one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A : Carbon forms two important oxides - CO and CO₂. CO is neutral whereas CO₂ is acidic in nature

Reason R : CO₂ can combine with water in a limited way to form carbonic acid, while CO is sparingly soluble in water

In the light of the above statements, choose the most appropriate answer from the options given below

- Options
1. Both A and R are correct and R is the correct explanation of A
 2. Both A and R are correct but R is NOT the correct explanation of A
 3. A is not correct but R is correct
 4. A is correct but R is not correct

Question Type : MCQ

Question ID : 7155051658

Option 1 ID : 7155054979

Option 2 ID : 7155054980

Option 3 ID : 7155054982

Option 4 ID : 7155054981

Status : Answered

Chosen Option : 1

Q.46 The isomeric deuterated bromide with molecular formula C_4H_8DBr having two chiral carbon atoms is

- Options**
1. 2 – Bromo – 1 – deutero – 2 – methylpropane
 2. 2 – Bromo – 3 – deuterobutane
 3. 2 – Bromo – 1 – deuterobutane
 4. 2 – Bromo – 2 – deuterobutane

Question Type : MCQ

Question ID : 7155051668

Option 1 ID : 7155055021

Option 2 ID : 7155055020

Option 3 ID : 7155055019

Option 4 ID : 7155055022

Status : Answered

Chosen Option : 4

Q.47 When the hydrogen ion concentration $[H^+]$ changes by a factor of 1000, the value of pH of the solution _____

- Options**
1. decreases by 2 units
 2. increases by 2 units
 3. decreases by 3 units
 4. increases by 1000 units

Question Type : MCQ

Question ID : 7155051653

Option 1 ID : 7155054959

Option 2 ID : 7155054962

Option 3 ID : 7155054961

Option 4 ID : 7155054960

Status : Answered

Chosen Option : 3

Q.48 A chloride salt solution acidified with dil. HNO_3 gives a curdy white precipitate, [A], on addition of $AgNO_3$. [A] on treatment with NH_4OH gives a clear solution, B. A and B are respectively

- Options**
1. $H[AgCl_3]$ & $[Ag(NH_3)_2]Cl$
 2. $AgCl$ & $[Ag(NH_3)_2]Cl$
 3. $H[AgCl_3]$ & $(NH_4)[Ag(OH)_2]$
 4. $AgCl$ & $(NH_4)[Ag(OH)_2]$

Question Type : MCQ

Question ID : 7155051663

Option 1 ID : 7155055000

Option 2 ID : 7155055001

Option 3 ID : 7155055002

Option 4 ID : 7155054999

Status : Not Attempted and Marked For Review

Chosen Option : --

- Q.49** A. Ammonium salts produce haze in atmosphere.
B. Ozone gets produced when atmospheric oxygen reacts with chlorine radicals.
C. Polychlorinated biphenyls act as cleansing solvents.
D. 'Blue baby' syndrome occurs due to the presence of excess of sulphate ions in water.

Choose the correct answer from the options given below:

- Options**
1. A and D only
 2. B and C only
 3. A, B and C only
 4. A and C only

Question Type : MCQ
Question ID : 7155051661
Option 1 ID : 7155054991
Option 2 ID : 7155054994
Option 3 ID : 7155054993
Option 4 ID : 7155054992
Status : Answered
Chosen Option : 1

- Q.50** Given below are two statements, one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A : Butylated hydroxy anisole when added to butter increases its shelf life.

Reason R : Butylated hydroxy anisole is more reactive towards oxygen than food.

In the light of the above statements, choose the most appropriate answer from the options given below

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

Question Type : MCQ
Question ID : 7155051670
Option 1 ID : 7155055030
Option 2 ID : 7155055028
Option 3 ID : 7155055027
Option 4 ID : 7155055029
Status : Not Answered
Chosen Option : --

Section : Chemistry Section B

- Q.51** Number of hydrogen atoms per molecule of a hydrocarbon A having 85.8 % carbon is _____
(Given: Molar mass of A = 84 g mol^{-1})

Given 12
Answer :

Question Type : SA
Question ID : 7155051679
Status : Answered

Q.52 Total number of moles of AgCl precipitated on addition of excess of AgNO₃ to one mole each of the following complexes [Co(NH₃)₄Cl₂]Cl, [Ni(H₂O)₆]Cl₂, [Pt(NH₃)₂Cl₂] and [Pd(NH₃)₄]Cl₂ is _____

Given --
Answer :

Question Type : SA
Question ID : 7155051678
Status : Not Answered

Q.53 The number of pairs of the solutions having the same value of the osmotic pressure from the following is _____ .

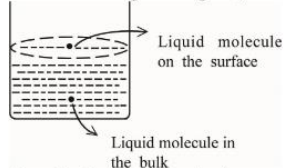
(Assume 100% ionization)

- A. 0.500 M C₂H₅OH (aq) and 0.25 M KBr (aq)
- B. 0.100 M K₄[Fe(CN)₆] (aq) and 0.100 M FeSO₄(NH₄)₂SO₄ (aq)
- C. 0.05 M K₄[Fe(CN)₆] (aq) and 0.25 M NaCl (aq)
- D. 0.15 M NaCl (aq) and 0.1 M BaCl₂ (aq)
- E. 0.02 M KCl.MgCl₂.6H₂O (aq) and 0.05 M KCl (aq)

Given --
Answer :

Question Type : SA
Question ID : 7155051674
Status : Not Answered

Q.54 Based on the given figure, the number of **correct** statement/s is/are _____



- A. Surface tension is the outcome of equal attractive and repulsive forces acting on the liquid molecule in bulk.
- B. Surface tension is due to uneven forces acting on the molecules present on the surface.
- C. The molecule in the bulk can never come to the liquid surface.
- D. The molecules on the surface are responsible for vapour pressure if the system is a closed system.

Given --
Answer :

Question Type : SA
Question ID : 7155051671
Status : Not Attempted and Marked For Review

Q.55 28.0 L of CO₂ is produced on complete combustion of 16.8 L gaseous mixture of ethene and methane at 25°C and 1 atm. Heat evolved during the combustion process is _____ kJ.

Given : $\Delta H_c(\text{CH}_4) = -900 \text{ kJ mol}^{-1}$
 $\Delta H_c(\text{C}_2\text{H}_4) = -1400 \text{ kJ mol}^{-1}$

Given --
Answer :

Question Type : SA
Question ID : 7155051673
Status : Not Answered

Q.56 The number of given orbitals which have electron density along the axis is _____
 $p_x, p_y, p_z, d_{xy}, d_{yz}, d_{xz}, d_{z^2}, d_{x^2-y^2}$

Given --
 Answer :

Question Type : SA
 Question ID : 7155051672
 Status : Not Attempted and Marked For Review

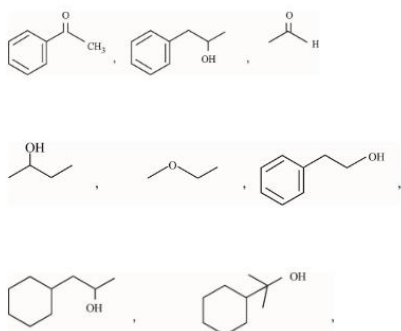
Q.57 The number of **incorrect** statement/s from the following is/are _____

- A. Water vapours are adsorbed by anhydrous calcium chloride.
- B. There is a decrease in surface energy during adsorption.
- C. As the adsorption proceeds, ΔH becomes more and more negative.
- D. Adsorption is accompanied by decrease in entropy of the system.

Given --
 Answer :

Question Type : SA
 Question ID : 7155051677
 Status : Not Answered

Q.58 Number of compounds giving (i) red colouration with ceric ammonium nitrate and also (ii) positive iodoform test from the following is _____



Given --
 Answer :

Question Type : SA
 Question ID : 7155051680
 Status : Not Attempted and Marked For Review

Q.59 $Pt(s) | H_2(g)(1\text{ bar}) | H^+(aq)(1M) || M^{3+}(aq), M^+(aq) | Pt(s)$

The E_{cell} for the given cell is 0.1115 V at 298 K when $\frac{[M^+(aq)]}{[M^{3+}(aq)]} = 10^a$

The value of a is _____

Given : $E^\theta_{M^{3+}/M^+} = 0.2\text{ V}$

$$\frac{2.303RT}{F} = 0.059V$$

Given **8.28**
 Answer :

Question Type : SA
 Question ID : 7155051675
 Status : Answered

Q.60 A first order reaction has the rate constant, $k = 4.6 \times 10^{-3} \text{ s}^{-1}$. The number of **correct** statement/s from the following is/are _____

Given: $\log 3 = 0.48$

- A. Reaction completes in 1000 s.
- B. The reaction has a half-life of 500 s.
- C. The time required for 10% completion is 25 times the time required for 90% completion.
- D. The degree of dissociation is equal to $(1 - e^{-kt})$
- E. The rate and the rate constant have the same unit.

Given --
Answer :

Question Type : **SA**

Question ID : **7155051676**

Status : **Not Attempted and
Marked For Review**

Section : **Mathematics Section A**

Q.61 The number of numbers, strictly between 5000 and 10000 can be formed using the digits 1,3,5,7,9 without repetition , is

- Options**
- 1. **12**
 - 2. **120**
 - 3. **6**
 - 4. **72**

Question Type : **MCQ**

Question ID : **7155051686**

Option 1 ID : **7155055063**

Option 2 ID : **7155055064**

Option 3 ID : **7155055061**

Option 4 ID : **7155055062**

Status : **Not Answered**

Chosen Option : --

Q.62

$$\text{Let } A = \begin{bmatrix} \frac{1}{\sqrt{10}} & \frac{3}{\sqrt{10}} \\ -\frac{3}{\sqrt{10}} & \frac{1}{\sqrt{10}} \end{bmatrix} \text{ and } B = \begin{bmatrix} 1 & -i \\ 0 & 1 \end{bmatrix}, \text{ where } i = \sqrt{-1}.$$

If $M = A^T B A$, then the inverse of the matrix $AM^{2023}A^T$ is

Options

1. $\begin{bmatrix} 1 & -2023i \\ 0 & 1 \end{bmatrix}$

2. $\begin{bmatrix} 1 & 2023i \\ 0 & 1 \end{bmatrix}$

3. $\begin{bmatrix} 1 & 0 \\ 2023i & 1 \end{bmatrix}$

4. $\begin{bmatrix} 1 & 0 \\ -2023i & 1 \end{bmatrix}$

Question Type : MCQ

Question ID : 7155051684

Option 1 ID : 7155055053

Option 2 ID : 7155055054

Option 3 ID : 7155055055

Option 4 ID : 7155055056

Status : Not Answered

Chosen Option : --

Q.63 Let T and C respectively be the transverse and conjugate axes of the hyperbola $16x^2 - y^2 + 64x + 4y + 44 = 0$. Then the area of the region above the parabola $x^2 = y + 4$, below the transverse axis T and on the right of the conjugate axis C is:

Options

1. $4\sqrt{6} + \frac{44}{3}$

2. $4\sqrt{6} - \frac{28}{3}$

3. $4\sqrt{6} - \frac{44}{3}$

4. $4\sqrt{6} + \frac{28}{3}$

Question Type : MCQ

Question ID : 7155051694

Option 1 ID : 7155055096

Option 2 ID : 7155055093

Option 3 ID : 7155055095

Option 4 ID : 7155055094

Status : Not Answered

Chosen Option : --

Q.64 Let $f(x) = 2x^n + \lambda$, $\lambda \in \mathbb{R}$, $n \in \mathbb{N}$, and $f(4) = 133$, $f(5) = 255$. Then the sum of all the positive integer divisors of $(f(3) - f(2))$ is

- Options 1. **61**
 2. 58
 3. 59
 4. 60

Question Type : **MCQ**

Question ID : **7155051688**

Option 1 ID : **7155055072**

Option 2 ID : **7155055069**

Option 3 ID : **7155055070**

Option 4 ID : **7155055071**

Status : **Not Answered**

Chosen Option : --

Q.65 Let A, B, C be 3×3 matrices such that A is symmetric and B and C are skew-symmetric.

Consider the statements

(S1) $A^{13} B^{26} - B^{26} A^{13}$ is symmetric

(S2) $A^{26} C^{13} - C^{13} A^{26}$ is symmetric

Then,

- Options 1. **Only S2 is true**
 2. Both S1 and S2 are false
 3. Both S1 and S2 are true
 4. Only S1 is true

Question Type : **MCQ**

Question ID : **7155051685**

Option 1 ID : **7155055060**

Option 2 ID : **7155055059**

Option 3 ID : **7155055057**

Option 4 ID : **7155055058**

Status : **Not Attempted and Marked For Review**

Chosen Option : --

Q.66 The shortest distance between the lines $x + 1 = 2y = -12z$ and $x = y + 2 = 6z - 6$ is

- Options 1. **2**
 2. $\frac{3}{2}$
 3. $\frac{5}{2}$
 4. 3

Question Type : **MCQ**

Question ID : **7155051695**

Option 1 ID : **7155055097**

Option 2 ID : **7155055098**

Option 3 ID : **7155055099**

Option 4 ID : **7155055100**

Status : **Answered**

Chosen Option : **2**

Q.67 Let $\vec{a} = -\hat{i} - \hat{j} + \hat{k}$, $\vec{a} \cdot \vec{b} = 1$ and $\vec{a} \times \vec{b} = \hat{i} - \hat{j}$.

Then $\vec{a} - 6\vec{b}$ is equal to

- Options
1. $3(\hat{i} + \hat{j} - \hat{k})$
 2. $3(\hat{i} - \hat{j} - \hat{k})$
 3. $3(\hat{i} + \hat{j} + \hat{k})$
 4. $3(\hat{i} - \hat{j} + \hat{k})$

Question Type : MCQ

Question ID : 7155051697

Option 1 ID : 7155055105

Option 2 ID : 7155055107

Option 3 ID : 7155055108

Option 4 ID : 7155055106

Status : Answered

Chosen Option : 3

Q.68

If the function $f(x) = \begin{cases} (1 + |\cos x|) \frac{\lambda}{|\cos x|}, & 0 < x < \frac{\pi}{2} \\ \mu, & x = \frac{\pi}{2} \\ \frac{\cot 6x}{e^{\cot 4x}}, & \frac{\pi}{2} < x < \pi \end{cases}$

is continuous at $x = \frac{\pi}{2}$, then $9\lambda + 6\log_e \mu + \mu^6 - e^{6\lambda}$ is equal to

- Options
1. 8
 2. $2e^4 + 8$
 3. 10
 4. 11

Question Type : MCQ

Question ID : 7155051689

Option 1 ID : 7155055073

Option 2 ID : 7155055076

Option 3 ID : 7155055074

Option 4 ID : 7155055075

Status : Not Answered

Chosen Option : --

Q.69

The integral $16 \int_1^2 \frac{dx}{x^3(x^2+2)^2}$ is equal to

- Options
1. $\frac{11}{6} + \log_e 4$
 2. $\frac{11}{12} - \log_e 4$
 3. $\frac{11}{12} + \log_e 4$
 4. $\frac{11}{6} - \log_e 4$

Question Type : MCQ

Question ID : 7155051691

Option 1 ID : 7155055083

Option 2 ID : 7155055082

Option 3 ID : 7155055081

Option 4 ID : 7155055084

Status : Not Answered

Chosen Option : --

Q.70 The equations of two sides of a variable triangle are $x = 0$ and $y = 3$, and its third side is a tangent to the parabola $y^2 = 6x$. The locus of its circumcentre is:

- Options
1. $4y^2 - 18y - 3x - 18 = 0$
 2. $4y^2 - 18y + 3x + 18 = 0$
 3. $4y^2 + 18y + 3x + 18 = 0$
 4. $4y^2 - 18y - 3x + 18 = 0$

Question Type : MCQ

Question ID : 7155051693

Option 1 ID : 7155055092

Option 2 ID : 7155055090

Option 3 ID : 7155055089

Option 4 ID : 7155055091

Status : Not Answered

Chosen Option : --

Q.71 Let $\Delta, \nabla \in \{\wedge, \vee\}$ be such that $(p \rightarrow q) \Delta (p \nabla q)$ is a tautology. Then

- Options
1. $\Delta = \wedge, \nabla = \wedge$
 2. $\Delta = \vee, \nabla = \wedge$
 3. $\Delta = \wedge, \nabla = \vee$
 4. $\Delta = \vee, \nabla = \vee$

Question Type : MCQ

Question ID : 7155051700

Option 1 ID : 7155055117

Option 2 ID : 7155055120

Option 3 ID : 7155055119

Option 4 ID : 7155055118

Status : Answered

Chosen Option : 4

Q.72 The foot of perpendicular of the point $(2, 0, 5)$ on the line $\frac{x+1}{2} = \frac{y-1}{5} = \frac{z+1}{-1}$ is (α, β, γ) . Then, which of the following is NOT correct?

- Options**
1. $\frac{\alpha\beta}{\gamma} = \frac{4}{15}$
 2. $\frac{\gamma}{\alpha} = \frac{5}{8}$
 3. $\frac{\beta}{\gamma} = -5$
 4. $\frac{\alpha}{\beta} = -8$

Question Type : **MCQ**

Question ID : **7155051696**

Option 1 ID : **7155055104**

Option 2 ID : **7155055103**

Option 3 ID : **7155055102**

Option 4 ID : **7155055101**

Status : **Not Answered**

Chosen Option : --

Q.73 Let $f: \mathbb{R} \rightarrow \mathbb{R}$ be a function defined by

$f(x) = \log_{\sqrt{m}} \{ \sqrt{2}(\sin x - \cos x) + m - 2 \}$, for some m , such that the range of f is $[0, 2]$. Then the value of m is _____

- Options**
1. **5**
 2. **3**
 3. **4**
 4. **2**

Question Type : **MCQ**

Question ID : **7155051681**

Option 1 ID : **7155055042**

Option 2 ID : **7155055044**

Option 3 ID : **7155055041**

Option 4 ID : **7155055043**

Status : **Not Answered**

Chosen Option : --

Q.74 If the four points, whose position vectors are $3\hat{i} - 4\hat{j} + 2\hat{k}$, $\hat{i} + 2\hat{j} - \hat{k}$, $-2\hat{i} - \hat{j} + 3\hat{k}$ and $5\hat{i} - 2\hat{j} + 4\hat{k}$ are coplanar, then α is equal to

- Options**
1. $\frac{73}{17}$
 2. $-\frac{73}{17}$
 3. $\frac{107}{17}$
 4. $-\frac{107}{17}$

Question Type : **MCQ**

Question ID : **7155051698**

Option 1 ID : **7155055110**

Option 2 ID : **7155055112**

Option 3 ID : **7155055109**

Option 4 ID : **7155055111**

Status : **Not Attempted and Marked For Review**

Chosen Option : --

Q.75 Let the function $f(x) = 2x^3 + (2p - 7)x^2 + 3(2p - 9)x - 6$ have a maxima for some value of $x < 0$ and a minima for some value of $x > 0$. Then, the set of all values of p is

- Options**
1. $\left(-\frac{9}{2}, \frac{9}{2}\right)$
 2. $\left(0, \frac{9}{2}\right)$
 3. $\left(-\infty, \frac{9}{2}\right)$
 4. $\left(\frac{9}{2}, \infty\right)$

Question Type : **MCQ**

Question ID : **7155051690**

Option 1 ID : **7155055078**

Option 2 ID : **7155055077**

Option 3 ID : **7155055079**

Option 4 ID : **7155055080**

Status : **Not Answered**

Chosen Option : --

Q.76 Let z be a complex number such that $\left| \frac{z-2i}{z+i} \right| = 2, z \neq -i$. Then z lies on the circle of radius 2 and centre

- Options**
1. $(0, 2)$
 2. $(0, 0)$
 3. $(2, 0)$
 4. $(0, -2)$

Question Type : **MCQ**
 Question ID : **7155051683**
 Option 1 ID : **7155055050**
 Option 2 ID : **7155055049**
 Option 3 ID : **7155055052**
 Option 4 ID : **7155055051**
 Status : **Not Answered**
 Chosen Option : --

Q.77 Let N be the sum of the numbers appeared when two fair dice are rolled and let the probability that $N-2, \sqrt{3N}, N+2$ are in geometric progression be $\frac{k}{48}$. Then the value of k is

- Options**
1. **16**
 2. **2**
 3. **4**
 4. **8**

Question Type : **MCQ**
 Question ID : **7155051699**
 Option 1 ID : **7155055114**
 Option 2 ID : **7155055113**
 Option 3 ID : **7155055116**
 Option 4 ID : **7155055115**
 Status : **Not Answered**
 Chosen Option : --

Q.78 The number of functions

$$f: \{1,2,3,4\} \rightarrow \{a \in \mathbb{Z} \mid |a| \leq 8\}$$

$$\text{satisfying } f(n) + \frac{1}{n} f(n+1) = 1, \forall n \in \{1,2,3\} \text{ is}$$

- Options**
1. **2**
 2. **3**
 3. **4**
 4. **1**

Question Type : **MCQ**
 Question ID : **7155051682**
 Option 1 ID : **7155055046**
 Option 2 ID : **7155055047**
 Option 3 ID : **7155055048**
 Option 4 ID : **7155055045**
 Status : **Not Answered**
 Chosen Option : --

Q.79 Let $y = y(t)$ be a solution of the differential equation

$$\frac{dy}{dt} + \alpha y = \gamma e^{-\beta t}$$

where, $\alpha > 0$, $\beta > 0$ and $\gamma > 0$. Then $\lim_{t \rightarrow \infty} y(t)$

- Options
1. is 0
 2. does not exist
 3. is 1
 4. is -1

Question Type : MCQ

Question ID : 7155051692

Option 1 ID : 7155055086

Option 2 ID : 7155055088

Option 3 ID : 7155055087

Option 4 ID : 7155055085

Status : Not Answered

Chosen Option : --

Q.80 $\sum_{k=0}^6 {}^{51-k}C_3$ is equal to

- Options
1. ${}^{51}C_3 - {}^{45}C_3$
 2. ${}^{51}C_4 - {}^{45}C_4$
 3. ${}^{52}C_4 - {}^{45}C_4$
 4. ${}^{52}C_3 - {}^{45}C_3$

Question Type : MCQ

Question ID : 7155051687

Option 1 ID : 7155055066

Option 2 ID : 7155055065

Option 3 ID : 7155055068

Option 4 ID : 7155055067

Status : Not Answered

Chosen Option : --

Section : Mathematics Section B

Q.81 If $\int_{\frac{1}{3}}^3 |\log_e x| dx = \frac{m}{n} \log_e \left(\frac{n^2}{e} \right)$, where m and n are coprime natural numbers, then $m^2 + n^2 - 5$ is equal to _____

Given --
Answer :

Question Type : SA

Question ID : 7155051706

Status : Not Answered

Q.82 Let $a \in \mathbb{R}$ and let α, β be the roots of the equation $x^2 + 60^{\frac{1}{4}}x + a = 0$

If $\alpha^4 + \beta^4 = -30$, then the product of all possible values of a is _____

Given --
Answer :

Question Type : SA
Question ID : 7155051701
Status : Not Answered

Q.83 If the shortest distance between the line joining the points (1, 2, 3) and (2, 3, 4), and the line

$\frac{x-1}{2} = \frac{y+1}{-1} = \frac{z-2}{0}$ is α , then $28\alpha^2$ is equal to _____ .

Given --
Answer :

Question Type : SA
Question ID : 7155051708
Status : Not Answered

Q.84 For the two positive numbers a, b , if a, b and $\frac{1}{18}$ are in a geometric progression, while $\frac{1}{a}, 10$ and

$\frac{1}{b}$ are in an arithmetic progression, then $16a + 12b$ is equal to _____ .

Given --
Answer :

Question Type : SA
Question ID : 7155051704
Status : Not Answered

Q.85 The remainder when $(2023)^{2023}$ is divided by 35 is _____

Given --
Answer :

Question Type : SA
Question ID : 7155051703
Status : Not Answered

Q.86 Suppose Anil's mother wants to give 5 whole fruits to Anil from a basket of 7 red apples, 5 white apples and 8 oranges. If in the selected 5 fruits, at least 2 oranges, at least one red apple and at least one white apple must be given, then the number of ways, Anil's mother can offer 5 fruits to Anil is _____

Given --
Answer :

Question Type : SA
Question ID : 7155051702
Status : Not Answered

Q.87 Points P(-3, 2), Q(9, 10) and R(α , 4) lie on a circle C with PR as its diameter. The tangents to C at the points Q and R intersect at the point S. If S lies on the line $2x - ky = 1$, then k is equal to _____ .

Given --
Answer :

Question Type : SA
Question ID : 7155051705
Status : Not Answered

Q.88 If m and n respectively are the numbers of positive and negative values of θ in the interval $[-\pi, \pi]$ that satisfy the equation $\cos 2\theta \cos \frac{\theta}{2} = \cos 3\theta \cos \frac{9\theta}{2}$, then mn is equal to _____.

Given --
Answer :

Question Type : SA
Question ID : 7155051710
Status : Not Answered

Q.89 25% of the population are smokers. A smoker has 27 times more chances to develop lung cancer than a non smoker. A person is diagnosed with lung cancer and the probability that this person is a smoker is $\frac{k}{10}$. Then the value of k is _____.

Given --
Answer :

Question Type : SA
Question ID : 7155051709
Status : Not Answered

Q.90 A triangle is formed by X-axis, Y-axis and the line $3x + 4y = 60$. Then the number of points P(a, b) which lie strictly inside the triangle, where a is an integer and b is a multiple of a, is _____.

Given --
Answer :

Question Type : SA
Question ID : 7155051707
Status : Not Answered