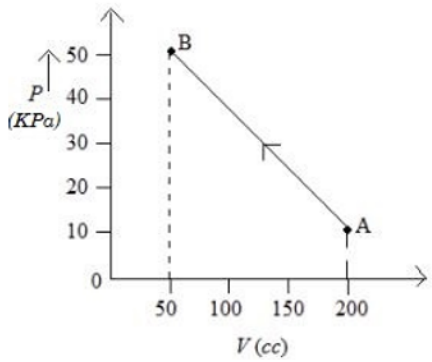
JEE 2023 Session-1 24th Jan to 1st Feb 2023

Application No	
Candidate Name	
Roll No	
Test Date	31/01/2023
Test Time	9:00 AM - 12:00 PM
Subject	B TECH

Section : **Physics Section A**

Q.1 The pressure of a gas changes linearly with volume from A to B as shown in figure. If no heat is supplied to or extracted from the gas then change in the internal energy of the gas will be



Options 1. zero
2. 4.5 J
3. 6 J
4. -4.5 J

Question Type : **MCQ**
Question ID : **366694550**
Option 1 ID : **3666941660**
Option 2 ID : **3666941657**
Option 3 ID : **3666941659**
Option 4 ID : **3666941658**
Status : **Answered**
Chosen Option : **1**

Q.2 The drift velocity of electrons for a conductor connected in an electrical circuit is V_d. The conductor in now replaced by another conductor with same material and same length but double the area of cross section. The applied voltage remains same. The new drift velocity of electrons will be

Options 1. $\frac{V_d}{2}$
2. $2V_d$
3. V_d
4. $\frac{V_d}{4}$

Question Type : **MCQ**
Question ID : **366694553**
Option 1 ID : **3666941671**
Option 2 ID : **3666941672**
Option 3 ID : **3666941669**
Option 4 ID : **3666941670**
Status : **Answered**
Chosen Option : **2**

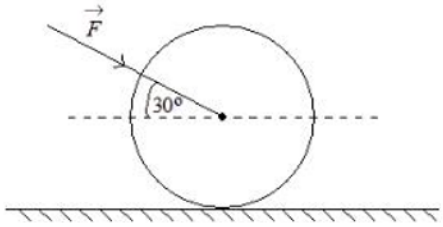
aglasem.com

Q.3 A free neutron decays into a proton but a free proton does not decay into neutron. This is because

Options
1. neutron is a composite particle made of a proton and an electron
2. neutron is an uncharged particle
3. proton is a charged particle
4. neutron has larger rest mass than proton

Question Type : **MCQ**
Question ID : **366694541**
Option 1 ID : **3666941623**
Option 2 ID : **3666941621**
Option 3 ID : **3666941622**
Option 4 ID : **3666941624**
Status : **Answered**
Chosen Option : **1**

Q.4 As shown in figure, a 70 kg garden roller is pushed with a force of $\vec{F} = 200$ N at an angle of 30° with horizontal. The normal reaction on the roller is (Given g = 10 m s^{-2})



Options
1. 600 N
2. 800 N
3. $800\sqrt{2}$ N
4. $200\sqrt{3}$ N

Question Type : **MCQ**
Question ID : **366694544**
Option 1 ID : **3666941633**
Option 2 ID : **3666941634**
Option 3 ID : **3666941635**
Option 4 ID : **3666941636**
Status : **Answered**
Chosen Option : **1**

aglasem.com

Q.5 Two polaroide A and B are placed in such a way that the pass-axis of polaroids are perpendicular to each other. Now, another polaroid C is placed between A and B bisecting angle between them. If intensity of unpolarized light is I_0 then intensity of transmitted light after passing through polaroid B will be:

Options
1. Zero
2. $\frac{I_0}{8}$
3. $\frac{I_0}{4}$
4. $\frac{I_0}{2}$

Question Type : **MCQ**
Question ID : **366694560**
Option 1 ID : **3666941700**
Option 2 ID : **3666941698**
Option 3 ID : **3666941699**
Option 4 ID : **3666941697**
Status : **Answered**
Chosen Option : **4**

Q.6 If 1000 droplets of water of surface tension 0.07 N/m, having same radius 1 mm each, combine to from a single drop. In the process the released surface energy is-

$\left(\text{Take } \pi = \frac{22}{7}\right)$

Options
1. 7.92×10^{-6} J
2. 9.68×10^{-4} J
3. 8.8×10^{-5} J
4. 7.92×10^{-4} J

Question Type : **MCQ**
Question ID : **366694549**
Option 1 ID : **3666941656**
Option 2 ID : **3666941654**
Option 3 ID : **3666941653**
Option 4 ID : **3666941655**
Status : **Answered**
Chosen Option : **3**

aglasem.com

Q.7 Spherical insulating ball and a spherical metallic ball of same size and mass are dropped from the same height. Choose the correct statement out of the following {Assume negligible air friction}

Options 1.
Metal ball will reach the earth's surface earlier than the insulating ball

2.
Time taken by them to reach the earth's surface will be independent of the properties of their materials

3.
Insulating ball will reach the earth's surface earlier than the metal ball

4. Both will reach the earth's surface simultaneously.

Question Type : **MCQ**
Question ID : **366694557**
Option 1 ID : **3666941687**
Option 2 ID : **3666941688**
Option 3 ID : **3666941686**
Option 4 ID : **3666941685**
Status : **Answered**
Chosen Option : **1**

Q.8 A bar magnet with a magnetic moment 5.0 Am^2 is placed in parallel position relative to a magnetic field of 0.4 T. The amount of required work done in turning the magnet from parallel to antiparallel position relative to the field direction is _____.

Options 1. 2 J
2. zero
3. 4 J
4. 1 J

Question Type : **MCQ**
Question ID : **366694556**
Option 1 ID : **3666941681**
Option 2 ID : **3666941684**
Option 3 ID : **3666941683**
Option 4 ID : **3666941682**
Status : **Answered**
Chosen Option : **2**

aglasem.com

Q.9 The amplitude of 15 sin (1000π t) is modulated by 10 sin (4π t) signal. The amplitude modulated signal contains frequency (ies) of

A. 500 Hz

B. 2 Hz

C. 250 Hz

D. 498 Hz

E. 502 Hz

Choose the correct answer from the options given below:

Options
1. A, D and E Only
2. B Only
3. A Only
4. A and B Only

Question Type : **MCQ**
Question ID : **366694543**
Option 1 ID : **3666941632**
Option 2 ID : **3666941630**
Option 3 ID : **3666941629**
Option 4 ID : **3666941631**
Status : **Answered**
Chosen Option : **3**

Q.10 The effect of increase in temperature on the number of electrons in conduction band (n_e) and resistance of a semiconductor will be as:

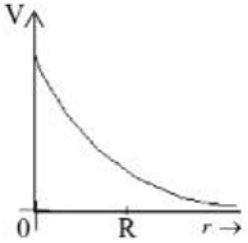
Options
1. n_e increases, resistance decreases
2. n_e decreases, resistance increases
3. Both n_e and resistance decrease
4. Both n_e and resistance increase

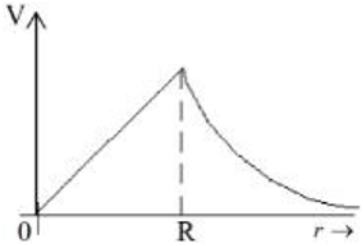
Question Type : **MCQ**
Question ID : **366694542**
Option 1 ID : **3666941625**
Option 2 ID : **3666941626**
Option 3 ID : **3666941627**
Option 4 ID : **3666941628**
Status : **Answered**
Chosen Option : **4**

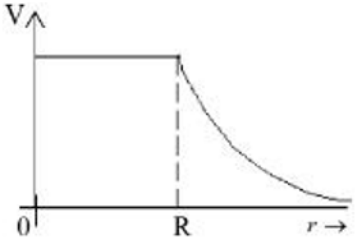
aglasem.com

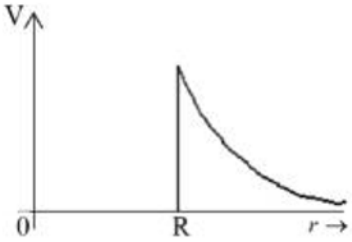
Q.11 Which of the following correctly represents the variation of electric potential (V) of a charged spherical conductor of radius (R) with radial distance (r) from the center?

Options

1. 

2. 

3. 

4. 

Question Type : **MCQ**
Question ID : **366694555**
Option 1 ID : **3666941679**
Option 2 ID : **3666941678**
Option 3 ID : **3666941677**
Option 4 ID : **3666941680**
Status : **Answered**
Chosen Option : **2**

Q.12 If R, X_L, and X_C represent resistance, inductive reactance and capacitive reactance. Then which of the following is dimensionless :

Options

1. $R\frac{X_L}{X_C}$
2. $\frac{R}{X_L\ X_C}$
3. $R\ X_L\ X_C$
4. $\frac{R}{\sqrt{X_L X_C}}$

Question Type : **MCQ**
Question ID : **366694547**
Option 1 ID : **3666941646**
Option 2 ID : **3666941648**
Option 3 ID : **3666941647**
Option 4 ID : **3666941645**
Status : **Answered**
Chosen Option : **4**

aglasem.com

Q.13 The correct relation between $\gamma = \frac{C_p}{C_v}$ and temperature T is :

Options
1. $\gamma \alpha \frac{1}{\sqrt{T}}$
2. $\gamma \alpha \frac{1}{T}$
3. $\gamma \alpha T^{\circ}$
4. $\gamma \alpha T$

Question Type : **MCQ**
Question ID : **366694551**
Option 1 ID : **3666941663**
Option 2 ID : **3666941662**
Option 3 ID : **3666941664**
Option 4 ID : **3666941661**
Status : **Answered**
Chosen Option : **4**

Q.14 The maximum potential energy of a block executing simple harmonic motion is 25 J. A is amplitude of oscillation. At $A/2$, the kinetic energy of the block is

Options
1. 12.5 J
2. 37.5 J
3. 9.75 J
4. 18.75 J

Question Type : **MCQ**
Question ID : **366694552**
Option 1 ID : **3666941665**
Option 2 ID : **3666941667**
Option 3 ID : **3666941668**
Option 4 ID : **3666941666**
Status : **Answered**
Chosen Option : **1**

Q.15 Given below are two statements : One is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A : The beam of electrons show wave nature and exhibit interference and diffraction.

Reason R : Davisson Germer Experimentally verified the wave nature of electrons.

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. A is correct but R is not correct
3. Both A and R are correct but R is Not the correct explanation of A
4. A is not correct but R is correct

Question Type : **MCQ**
Question ID : **366694559**
Option 1 ID : **3666941693**
Option 2 ID : **3666941695**
Option 3 ID : **3666941694**
Option 4 ID : **3666941696**
Status : **Answered**
Chosen Option : **2**

aglasem.com

Q.16 100 balls each of mass m moving with speed v simultaneously strike a wall normally and reflected back with same speed, in time t s. The total force exerted by the balls on the wall is

Options

1. $\frac{200mv}{t}$
2. $200mvt$
3. $\frac{100mv}{t}$
4. $\frac{mv}{100\ t}$

Question Type : **MCQ**
Question ID : **366694545**
Option 1 ID : **3666941638**
Option 2 ID : **3666941640**
Option 3 ID : **3666941639**
Option 4 ID : **3666941637**
Status : **Answered**
Chosen Option : **3**

Q.17 If a source of electromagnetic radiation having power 15 kW produces 10^{16} photons per second, the radiation belongs to a part of spectrum is.
(Take Planck constant h = 6×10^{-34} Js)

Options

1. Radio waves
2. Gamma rays
3. Ultraviolet rays
4. Micro waves

Question Type : **MCQ**
Question ID : **366694558**
Option 1 ID : **3666941691**
Option 2 ID : **3666941692**
Option 3 ID : **3666941689**
Option 4 ID : **3666941690**
Status : **Answered**
Chosen Option : **2**

aglasem.com

Q.18 A rod with circular cross-section area 2 cm^2 and length 40 cm is wound uniformly with 400 turns of an insulated wire. If a current of 0.4 A flows in the wire windings, the total magnetic flux produced inside windings is $4\pi \times 10^{-6}$ Wb. The relative permeability of the rod is

(Given : Permeability of vacuum $\mu_0 = 4\pi \times 10^{-7}\ N\ A^{-2}$)

Options

1. 125
2. 12.5
3. $\frac{32}{5}$
4. $\frac{5}{16}$

Question Type : **MCQ**
Question ID : **366694554**
Option 1 ID : **3666941673**
Option 2 ID : **3666941676**
Option 3 ID : **3666941675**
Option 4 ID : **3666941674**
Status : **Answered**
Chosen Option : **3**

Q.19 The initial speed of a projectile fired from ground is u. At the highest point during its motion, the speed of projectile is $\frac{\sqrt{3}}{2}u$. The time of flight of the projectile is :

Options

1. $\frac{u}{2g}$
2. $\frac{2u}{g}$
3. $\frac{u}{g}$
4. $\frac{\sqrt{3}u}{g}$

Question Type : **MCQ**
Question ID : **366694546**
Option 1 ID : **3666941643**
Option 2 ID : **3666941641**
Option 3 ID : **3666941642**
Option 4 ID : **3666941644**
Status : **Answered**
Chosen Option : **4**

aglasem.com

Q.20 At a certain depth "d " below surface of earth, value of acceleration due to gravity becomes four times that of its value at a height 3R above earth surface. Where R is Radius of earth (Take R = 6400 km). The depth d is equal to

Options 1. 640 km
2. 2560 km
3. 5260 km
4. 4800 km

Question Type : **MCQ**
Question ID : **366694548**
Option 1 ID : **3666941649**
Option 2 ID : **3666941650**
Option 3 ID : **3666941651**
Option 4 ID : **3666941652**
Status : **Answered**
Chosen Option : **4**

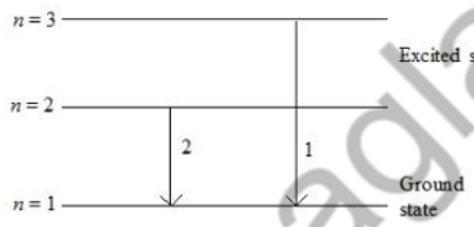
Section : **Physics Section B**

Q.21 A solid sphere of mass 1 kg rolls without slipping on a plane surface. Its kinetic energy is 7×10^{-3} J. The speed of the centre of mass of the sphere is _____ cm s^{-1}.

Given --
Answer :

Question Type : **SA**
Question ID : **366694562**
Status : **Not Answered**

Q.22 For hydrogen atom, λ_1 and λ_2 are the wavelengths corresponding to the transitions 1 and 2 respectively as shown in figure. The ratio of λ_1 and λ_2 is $\frac{x}{32}$. The value of x is _____.



Given **1**
Answer :

Question Type : **SA**
Question ID : **366694561**
Status : **Answered**

Q.23 Two identical cells, when connected either in parallel or in series gives same current in an external resistance 5 Ω. The internal resistance of each cell will be _____ Ω.

Given **5**
Answer :

Question Type : **SA**
Question ID : **366694568**
Status : **Answered**

aglasem.com

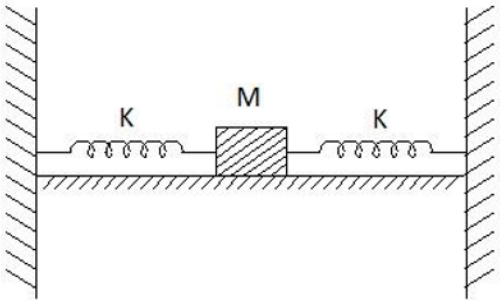
Q.24 A thin rod having a length of 1 m and area of cross-section 3×10^{-6} m^2 is suspended vertically from one end. The rod is cooled from 210°C to 160°C. After cooling, a mass M is attached at the lower end of the rod such that the length of rod again becomes 1 m. Young's modulus and coefficient of linear expansion of the rod are 2×10^{11} N m^{-2} and 2×10^{-5} K^{-1}, respectively. The value of M is _____ kg.

(Take g = 10 m s^{-2})

Given --
Answer :

Question Type : **SA**
Question ID : **366694565**
Status : **Not Answered**

Q.25 In the figure given below, a block of mass M = 490 g placed on a frictionless table is connected with two springs having same spring constant (K = 2 N m^{-1}). If the block is horizontally displaced through 'X' m then the number of complete oscillations it will make in 14π seconds will be _____.



Given --
Answer :

Question Type : **SA**
Question ID : **366694566**
Status : **Not Answered**

Q.26 In a medium the speed of light wave decreases to 0.2 times to its speed in free space The ratio of relative permittivity to the refractive index of the medium is x : 1. The value of x is _____.

(Given speed of light in free space = 3×10^8 m s^{-1} and for the given medium $\mu_r = 1$)

Given **1**
Answer :

Question Type : **SA**
Question ID : **366694570**
Status : **Answered**

Q.27 A lift of mass M = 500 kg is descending with speed of 2 ms^{-1}. Its supporting cable begins to slip thus allowing it to fall with a constant acceleration of 2 ms^{-2}. The kinetic energy of the lift at the end of fall through to a distance of 6 m will be _____ kJ.

Given **1000**
Answer :

Question Type : **SA**
Question ID : **366694563**
Status : **Answered**

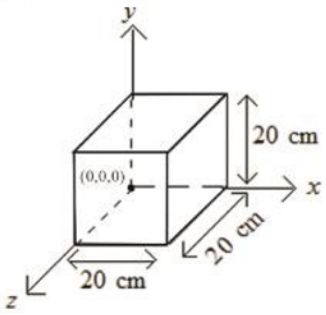
aglasem.com

Q.28 An inductor of 0.5 mH, a capacitor of 20 μF and resistance of 20 Ω are connected in series with a 220 V ac source. If the current is in phase with the emf, the amplitude of current of the circuit is $\sqrt{x}$ A. The value of x is -

Given --
Answer :

Question Type : **SA**
Question ID : **366694569**
Status : **Not Answered**

Q.29 Expression for an electric field is given by $\vec{E} = 4000\,x^2\,\hat{i}\,\frac{V}{m}$. The electric flux through the cube of side 20 cm when placed in electric field (as shown in the figure) is _____ V cm.



Given --
Answer :

Question Type : **SA**
Question ID : **366694567**
Status : **Not Answered**

Q.30 The speed of a swimmer is 4 km h^{-1} in still water. If the swimmer makes his strokes normal to the flow of river of width 1 km, he reaches a point 750 m down the stream on the opposite bank.

The speed of the river water is _____ km h^{-1}

Given --
Answer :

Question Type : **SA**
Question ID : **366694564**
Status : **Not Answered**

aglasem.com

Section : **Chemistry Section A**

Q.31 Which of the following artificial sweeteners has the highest sweetness value in comparison to cane sugar ?

Options 1. Alitame
2. Aspartame
3. Saccharin
4. Sucralose

Question Type : **MCQ**
Question ID : **366694588**
Option 1 ID : **3666941782**
Option 2 ID : **3666941779**
Option 3 ID : **3666941780**
Option 4 ID : **3666941781**
Status : **Answered**
Chosen Option : **4**

Q.32 The methods NOT involved in concentration of ore are

A. Liquation

B. Leaching

C. Electrolysis

D. Hydraulic washing

E. Froth floatation

Choose the correct answer from the options given below :

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

Question Type : **MCQ**
Question ID : **366694575**
Option 1 ID : **3666941727**
Option 2 ID : **3666941729**
Option 3 ID : **3666941730**
Option 4 ID : **3666941728**
Status : **Answered**
Chosen Option : **1**

Q.33 Match **List I** with **List II**

List I	List II
A. XeF_4	I. See-saw
B. SF_4	II. Square planar
C. NH_4^+	III. Bent T-shaped
D. BrF_3	IV. Tetrahedral

Choose the correct answer from the options given below :

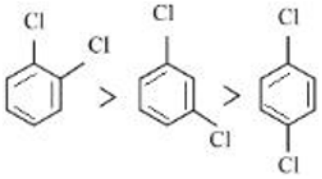
Options
1. A-IV, B-I, C-II, D-III
2. A-II, B-I, C-III, D-IV
3. A-IV, B-III, C-II, D-I
4. A-II, B-I, C-IV, D-III

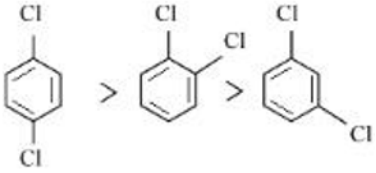
Question Type : **MCQ**
Question ID : **366694572**
Option 1 ID : **3666941718**
Option 2 ID : **3666941716**
Option 3 ID : **3666941717**
Option 4 ID : **3666941715**
Status : **Answered**
Chosen Option : **4**

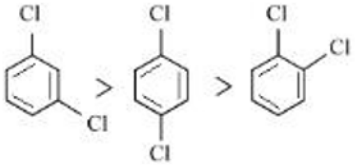
aglasem.com

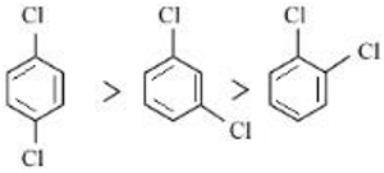
Q.34 The correct order of melting points of dichlorobenzenes is

Options

1. 

2. 

3. 

4. 

Question Type : **MCQ**
Question ID : **366694584**
Option 1 ID : **3666941763**
Option 2 ID : **3666941765**
Option 3 ID : **3666941764**
Option 4 ID : **3666941766**
Status : **Answered**
Chosen Option : **1**

Q.35 The correct increasing order of the ionic radii is

Options

1. $Ca^{2+} < K^{+} < Cl^{-} < S^{2-}$
2. $K^{+} < S^{2-} < Ca^{2+} < Cl^{-}$
3. $S^{2-} < Cl^{-} < Ca^{2+} < K^{+}$
4. $Cl^{-} < Ca^{2+} < K^{+} < S^{2-}$

Question Type : **MCQ**
Question ID : **366694574**
Option 1 ID : **3666941723**
Option 2 ID : **3666941726**
Option 3 ID : **3666941724**
Option 4 ID : **3666941725**
Status : **Answered**
Chosen Option : **1**

aglasem.com

Q.36 Consider the following reaction

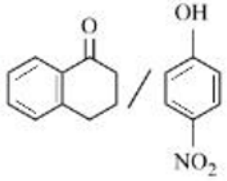
$$\text{Propanal} + \text{Methanal} \xrightarrow[\text{(ii) } \Delta \text{ (iii) NaCN (iv) } H_3O^+]{\text{(i) dil.NaOH}} \underset{(C_5H_8O_3)}{\text{Product B}}$$

The correct statement for product B is. It is

Options
1. optically active alcohol and is neutral
2. racemic mixture and is neutral
3. racemic mixture and gives a gas with saturated $NaHCO_3$ solution
4. optically active and adds one mole of bromine

Question Type : **MCQ**
Question ID : **366694586**
Option 1 ID : **3666941774**
Option 2 ID : **3666941773**
Option 3 ID : **3666941772**
Option 4 ID : **3666941771**
Status : **Answered**
Chosen Option : **1**

Q.37 Match items of column I and II

Column I (Mixture of compounds)	Column II (Separation Technique)
A. H_2O / CH_2Cl_2	i. Crystallization
B. 	ii. Differential solvent extraction
C. Kerosene / Naphthalene	iii. Column chromatography
D. $C_6H_{12}O_6$ / NaCl	iv. Fractional Distillation

Correct match is

Options
1. A-(iii), B-(iv), C-(ii), D-(i)
2. A-(ii), B-(iii), C-(iv), D-(i)
3. A-(ii), B-(iv), C-(i), D-(iii)
4. A-(i), B-(iii), C-(ii), D-(iv)

Question Type : **MCQ**
Question ID : **366694582**
Option 1 ID : **3666941758**
Option 2 ID : **3666941756**
Option 3 ID : **3666941757**
Option 4 ID : **3666941755**
Status : **Answered**
Chosen Option : **2**

aglasem.com

Q.38 H_2O_2 acts as a reducing agent in

Options
1. $2Fe^{2+} + 2H^+ + H_2O_2 \rightarrow 2Fe^{3+} + 2H_2O$
2. $Mn^{2+} + 2H_2O_2 \rightarrow MnO_2 + 2H_2O$
3. $2NaOCl + H_2O_2 \rightarrow 2\,NaCl + H_2O + O_2$
4. $Na_2S + 4H_2O_2 \rightarrow Na_2SO_4 + 4H_2O$

Question Type : **MCQ**
Question ID : **366694576**
Option 1 ID : **3666941731**
Option 2 ID : **3666941733**
Option 3 ID : **3666941734**
Option 4 ID : **3666941732**
Status : **Answered**
Chosen Option : **3**

Q.39 $Nd^{2+} =$ _____

Options
1. $4f^3$
2. $4f^4$
3. $4f^4 6s^2$
4. $4f^2 6s^2$

Question Type : **MCQ**
Question ID : **366694578**
Option 1 ID : **3666941742**
Option 2 ID : **3666941740**
Option 3 ID : **3666941739**
Option 4 ID : **3666941741**
Status : **Answered**
Chosen Option : **2**

Q.40 Choose the correct set of reagents for the following conversion.

trans (Ph – CH = CH – CH_3) → cis (Ph – CH = CH – CH_3)

Options
1. Br_2, alc•KOH, $NaNH_2$, Na (Liq NH_3)
2. Br_2, aq•KOH, $NaNH_2$, H_2 Lindlar Catalyst
3. Br_2, alc•KOH, $NaNH_2$, H_2 Lindlar Catalyst
4. Br_2, aq•KOH, $NaNH_2$, Na (Liq NH_3)

Question Type : **MCQ**
Question ID : **366694583**
Option 1 ID : **3666941759**
Option 2 ID : **3666941762**
Option 3 ID : **3666941761**
Option 4 ID : **3666941760**
Status : **Answered**
Chosen Option : **3**

aglasem.com

Q.41 Which transition in the hydrogen spectrum would have the same wavelength as the Balmer type transition from n = 4 to n = 2 of He^+ spectrum

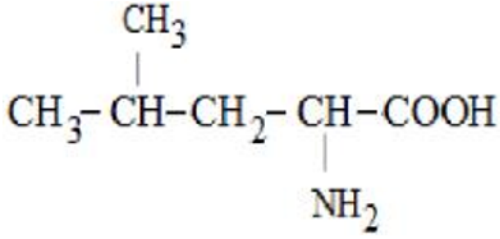
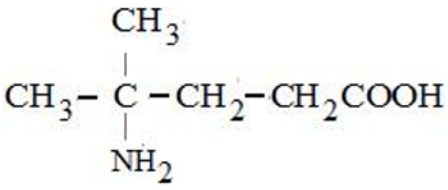
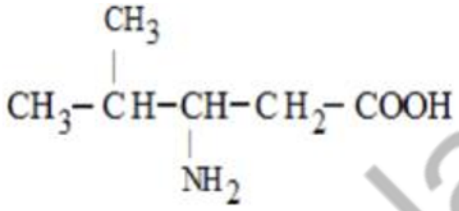
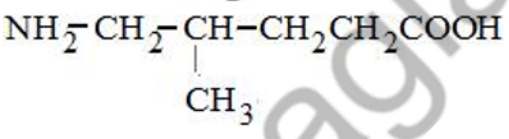
Options

1. $n = 1$ to $n = 2$
2. $n = 1$ to $n = 3$
3. $n = 2$ to $n = 1$
4. $n = 3$ to $n = 4$

Question Type : **MCQ**
Question ID : **366694571**
Option 1 ID : **3666941711**
Option 2 ID : **3666941713**
Option 3 ID : **3666941712**
Option 4 ID : **3666941714**
Status : **Answered**
Chosen Option : **1**

Q.42 A protein 'X' with molecular weight of 70,000 u, on hydrolysis gives amino acids. One of these amino acid is

Options

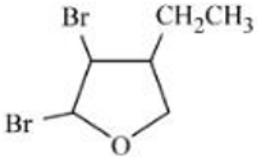
1. 
2. 
3. 
4. 

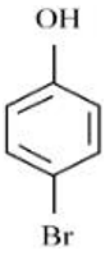
Question Type : **MCQ**
Question ID : **366694589**
Option 1 ID : **3666941784**
Option 2 ID : **3666941785**
Option 3 ID : **3666941783**
Option 4 ID : **3666941786**
Status : **Answered**
Chosen Option : **1**

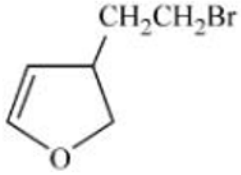
aglasem.com

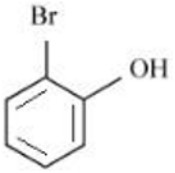
Q.43 An organic compound 'A' with emperical formula C_6H_6O gives sooty flame on burning. Its reaction with bromine solution in low polarity solvent results in high yield of B. B is

Options

1. 

2. 

3. 

4. 

Question Type : **MCQ**
Question ID : **366694585**
Option 1 ID : **3666941767**
Option 2 ID : **3666941770**
Option 3 ID : **3666941769**
Option 4 ID : **3666941768**
Status : **Answered**
Chosen Option : **2**

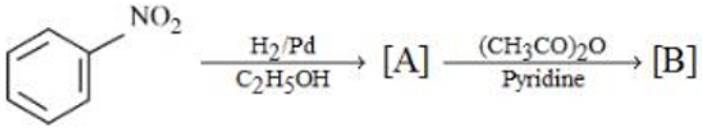
Q.44 The correct order of basicity of oxides of vanadium is

Options

1. $V_2O_4 > V_2O_3 > V_2O_5$
2. $V_2O_3 > V_2O_4 > V_2O_5$
3. $V_2O_5 > V_2O_4 > V_2O_3$
4. $V_2O_3 > V_2O_5 > V_2O_4$

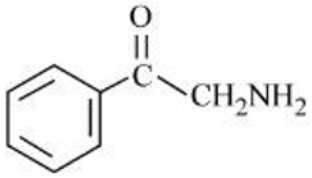
Question Type : **MCQ**
Question ID : **366694579**
Option 1 ID : **3666941743**
Option 2 ID : **3666941744**
Option 3 ID : **3666941745**
Option 4 ID : **3666941746**
Status : **Answered**
Chosen Option : **2**

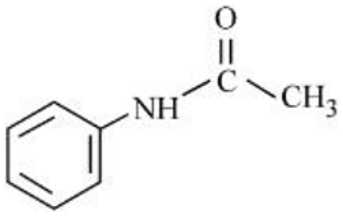
aglasem.com

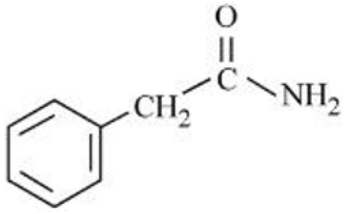
Q.45 

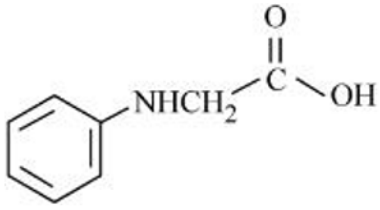
Consider the above reaction and identify the product B.

Options

1. 

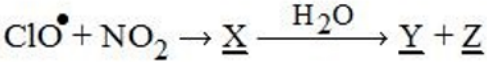
2. 

3. 

4. 

Question Type : **MCQ**
Question ID : **366694587**
Option 1 ID : **3666941775**
Option 2 ID : **3666941777**
Option 3 ID : **3666941776**
Option 4 ID : **3666941778**
Status : **Answered**
Chosen Option : **1**

Q.46 Identify X, Y and Z in the following reaction. (Equation not balanced)



Options

1. $X = ClONO_2,\ Y=HOCl,\ Z=HNO_3$
2. $X = ClNO_3,\ Y = Cl_2,\ Z = NO_2$
3. $X = ClNO_2,\ Y = HCl,\ Z = HNO_3$
4. $X = ClONO_2,\ Y = HOCl,\ Z = NO_2$

Question Type : **MCQ**
Question ID : **366694581**
Option 1 ID : **3666941751**
Option 2 ID : **3666941753**
Option 3 ID : **3666941752**
Option 4 ID : **3666941754**
Status : **Answered**
Chosen Option : **2**

aglasem.com

Q.47 Which one of the following statements is correct for electrolysis of brine solution ?

Options

1. Cl_2 is formed at cathode
2. H_2 is formed at anode
3. O_2 is formed at cathode
4. OH^- is formed at cathode

Question Type : **MCQ**
Question ID : **366694577**
Option 1 ID : **3666941735**
Option 2 ID : **3666941737**
Option 3 ID : **3666941736**
Option 4 ID : **3666941738**
Status : **Answered**
Chosen Option : **1**

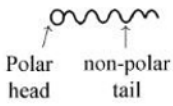
Q.48 Cobalt chloride when dissolved in water forms pink colored complex X which has octahedral geometry. This solution on treating with conc HCl forms deep blue complex, Y which has a Z geometry. X, Y and Z, respectively, are

Options

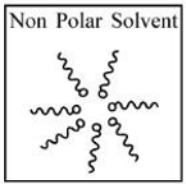
1. $X = [Co(H_2O)_6]^{2+}$, $Y = [CoCl_4]^{2-}$, Z = Tetrahedral
2. $X = [Co(H_2O)_6]^{3+}$, $Y = [CoCl_6]^{3-}$, Z = Octahedral
3. $X = [Co(H_2O)_6]^{2+}$, $Y = [CoCl_6]^{3-}$, Z = Octahedral
4. $X = [Co(H_2O)_4Cl_2]^{+}$, $Y = [CoCl_4]^{2-}$, Z = Tetrahedral

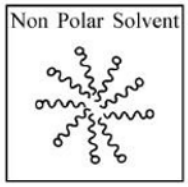
Question Type : **MCQ**
Question ID : **366694580**
Option 1 ID : **3666941747**
Option 2 ID : **3666941748**
Option 3 ID : **3666941750**
Option 4 ID : **3666941749**
Status : **Answered**
Chosen Option : **4**

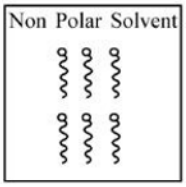
Q.49 Adding surfactants in non polar solvent, the micelles structure will look like

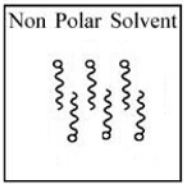


(Surfactant structure)

(a) 

(b) 

(c) 

(d) 

Options

1. b
2. d
3. a
4. c

Question Type : **MCQ**
Question ID : **366694573**
Option 1 ID : **3666941720**
Option 2 ID : **3666941722**
Option 3 ID : **3666941719**
Option 4 ID : **3666941721**
Status : **Not Answered**
Chosen Option : **--**

aglasem.com

Q.50 When Cu^{2+} ion is treated with KI, a white precipitate, X appears in solution. The solution is titrated with sodium thiosulphate, the compound Y is formed. X and Y respectively are

Options

1. $X = Cu_2I_2$ $Y = Na_2S_4O_6$
2. $X = CuI_2$ $Y = Na_2S_4O_6$
3. $X = CuI_2$ $Y = Na_2S_2O_3$
4. $X = Cu_2I_2$ $Y = Na_2S_4O_5$

Question Type : **MCQ**
Question ID : **366694590**
Option 1 ID : **3666941789**
Option 2 ID : **3666941787**
Option 3 ID : **3666941790**
Option 4 ID : **3666941788**
Status : **Answered**
Chosen Option : **2**

Section : **Chemistry Section B**

Q.51 A→B

The rate constants of the above reaction at 200 K and 300 K are 0.03 min^{-1} and 0.05 min^{-1} respectively. The activation energy for the reaction is _____ J (Nearest integer)

(Given : ln 10 = 2.3

$R = 8.3\ J\ K^{-1}\ mol^{-1}$

log 5 = 0.70

log 3 = 0.48

log 2 = 0.30)

Given --
Answer :

Question Type : **SA**
Question ID : **366694597**
Status : **Not Answered**

Q.52 Zinc reacts with hydrochloric acid to give hydrogen and zinc chloride. The volume of hydrogen gas produced at STP from the reaction of 11.5 g of zinc with excess HCl is _____ L (Nearest integer)

(Given : Molar mass of Zn is 65.4g mol^{-1} and Molar volume of H_2 at STP = 22.7 L)

Given --
Answer :

Question Type : **SA**
Question ID : **366694591**
Status : **Not Answered**

aglasem.com

Q.53 At 27°C , a solution containing 2.5 g of solute in 250.0 mL of solution exerts an osmotic pressure of 400 Pa. The molar mass of the solute is _____ $g\ mol^{-1}$ (Nearest integer)

(Given : R = 0.083 L bar $K^{-1}\ mol^{-1}$)

Given --
Answer :

Question Type : **SA**
Question ID : **366694594**
Status : **Not Answered**

Q.54 The total pressure of a mixture of non-reacting gases X (0.6 g) and Y (0.45 g) in a vessel is 740 mm of Hg. The partial pressure of the gas X is _____ mm of Hg. (Nearest Integer)

(Given : molar mass X = 20 and Y = 45 g mol^{-1})

Given --
Answer :

Question Type : **SA**
Question ID : **366694592**
Status : **Not Answered**

Q.55 The oxidation state of phosphorus in hypophosphoric acid is + _____.

Given **6**
Answer :

Question Type : **SA**
Question ID : **366694598**
Status : **Answered**

Q.56 For reaction : $SO_2(g)+\frac{1}{2}O_2(g) \rightleftharpoons SO_3(g)$

$K_p = 2\times10^{12}$ at 27°C and 1 atm pressure. The K_c for the same reaction is _____ $\times10^{13}$. (Nearest integer)

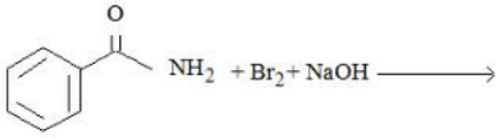
(Given R = 0.082 L atm $K^{-1}\ mol^{-1}$)

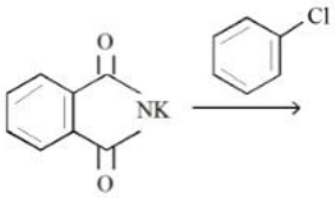
Given **1**
Answer :

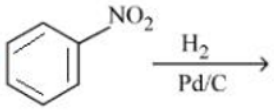
Question Type : **SA**
Question ID : **366694595**
Status : **Answered**

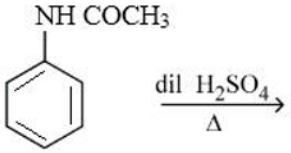
aglasem.com

Q.57 How many of the transformations given below would result in aromatic amines ?

1) 

2) 

3) 

4) 

Given **2**
Answer :

Question Type : **SA**
Question ID : **366694600**
Status : **Answered**

Q.58 The enthalpy change for the conversion of $\frac{1}{2}Cl_2(g)$ to $Cl^-(aq)$ is (–) _____ kJ mol^{-1} (Nearest integer)

Given : $\Delta_{dis}H^{\ominus}_{Cl_2(g)} = 240$ kJ mol^{-1}, $\Delta_{eg}H^{\ominus}_{Cl(g)} = -350$ kJ mol^{-1},

$\Delta_{hyd}H^{\ominus}_{Cl^-_{(g)}} = -380$ kJ mol^{-1}

Given **-270**
Answer :

Question Type : **SA**
Question ID : **366694593**
Status : **Answered**

Q.59 On complete combustion, 0.492 g of an organic compound gave 0.792 g of CO_2. The % of carbon in the organic compound is _____(Nearest integer)

Given **--**
Answer :

Question Type : **SA**
Question ID : **366694599**
Status : **Not Answered**

aglasem.com

Q.60 The logarithm of equilibrium constant for the reaction $Pd^{2+} + 4Cl^- \rightleftharpoons PdCl_4^{2-}$ is _____ (Nearest integer)

Given : $\frac{2.303RT}{F} = 0.06V$

$Pd^{2+}_{(aq)} + 2e^- \rightleftharpoons Pd(s) \quad E^\ominus = 0.83V$

$PdCl_4^{2-}(aq) + 2e^- \rightleftharpoons Pd(s) + 4Cl^-(aq) \quad E^\ominus = 0.65V$

Given **0.18**
Answer :

Question Type : **SA**
Question ID : **366694596**
Status : **Answered**

Section : **Mathematics Section A**

Q.61 If the domain of the function $f(x) = \frac{[x]}{1+x^2}$, where $[x]$ is greatest integer $\le x$, is $[2, 6)$, then its range is

Options

1. $\left(\frac{5}{37}, \frac{2}{5}\right] - \left\{\frac{9}{29}, \frac{27}{109}, \frac{18}{89}, \frac{9}{53}\right\}$
2. $\left(\frac{5}{26}, \frac{2}{5}\right] - \left\{\frac{9}{29}, \frac{27}{109}, \frac{18}{89}, \frac{9}{53}\right\}$
3. $\left(\frac{5}{26}, \frac{2}{5}\right]$
4. $\left(\frac{5}{37}, \frac{2}{5}\right]$

Question Type : **MCQ**
Question ID : **366694611**
Option 1 ID : **3666941843**
Option 2 ID : **3666941842**
Option 3 ID : **3666941841**
Option 4 ID : **3666941844**
Status : **Answered**
Chosen Option : **3**

aglasem.com

Q.62 If the sum and product of four positive consecutive terms of a G.P., are 126 and 1296, respectively, then the sum of common ratios of all such GPs is

Options

1. $\frac{9}{2}$
2. 14
3. 3
4. 7

Question Type : **MCQ**
Question ID : **366694606**
Option 1 ID : **3666941824**
Option 2 ID : **3666941821**
Option 3 ID : **3666941823**
Option 4 ID : **3666941822**
Status : **Answered**
Chosen Option : **4**

Q.63

The value of $\int_{\frac{\pi}{3}}^{\frac{\pi}{2}} \frac{(2+3\sin x)}{\sin x(1+\cos x)}\,dx$ is equal to

Options

1. $\frac{10}{3}-\sqrt{3}+\log_e\sqrt{3}$
2. $\frac{10}{3}-\sqrt{3}-\log_e\sqrt{3}$
3. $-2+3\sqrt{3}+\log_e\sqrt{3}$
4. $\frac{7}{2}-\sqrt{3}-\log_e\sqrt{3}$

Question Type : **MCQ**
Question ID : **366694609**
Option 1 ID : **3666941834**
Option 2 ID : **3666941833**
Option 3 ID : **3666941835**
Option 4 ID : **3666941836**
Status : **Answered**
Chosen Option : **1**

Q.64 Let the shortest distance between the lines $L:\frac{x-5}{-2}=\frac{y-\lambda}{0}=\frac{z+\lambda}{1}$, $\lambda \geq 0$ and $L_1: x+1=y-1=4-z$ be $2\sqrt{6}$. If (α,β,γ) lies on L, then which of the following is **NOT** possible ?

Options

1. $2\alpha-\gamma=9$
2. $\alpha+2\gamma=24$
3. $2\alpha+\gamma=7$
4. $\alpha-2\gamma=19$

Question Type : **MCQ**
Question ID : **366694616**
Option 1 ID : **3666941863**
Option 2 ID : **3666941864**
Option 3 ID : **3666941862**
Option 4 ID : **3666941861**
Status : **Answered**
Chosen Option : **1**

aglasem.com

Q.65 Let $A=\begin{pmatrix}1 & 0 & 0\\ 0 & 4 & -1\\ 0 & 12 & -3\end{pmatrix}$. Then the sum of the diagonal elements of the matrix $(A+I)^{11}$ is equal to :

Options
1. 4094
2. 6144
3. 4097
4. 2050

Question Type : **MCQ**
Question ID : **366694604**
Option 1 ID : **3666941814**
Option 2 ID : **3666941816**
Option 3 ID : **3666941815**
Option 4 ID : **3666941813**
Status : **Answered**
Chosen Option : **1**

Q.66 The number of real roots of the equation $\sqrt{x^2-4x+3}+\sqrt{x^2-9}=\sqrt{4x^2-14x+6}$, is :

Options
1. 0
2. 2
3. 3
4. 1

Question Type : **MCQ**
Question ID : **366694602**
Option 1 ID : **3666941805**
Option 2 ID : **3666941807**
Option 3 ID : **3666941808**
Option 4 ID : **3666941806**
Status : **Answered**
Chosen Option : **4**

Q.67 Let R be a relation on $N \times N$ defined by (a, b) R (c, d) if and only if $ad(b-c) = bc(a-d)$. Then R is

Options
1. symmetric but neither reflexive nor transitive
2. symmetric and transitive but not reflexive
3. reflexive and symmetric but not transitive
4. transitive but neither reflexive nor symmetric

Question Type : **MCQ**
Question ID : **366694601**
Option 1 ID : **3666941803**
Option 2 ID : **3666941802**
Option 3 ID : **3666941801**
Option 4 ID : **3666941804**
Status : **Answered**
Chosen Option : **1**

aglasem.com

Q.68 A wire of length 20 m is to be cut into two pieces. A piece of length l_1 is bent to make a square of area A_1 and the other piece of length l_2 is made into a circle of area A_2. If $2A_1 + 3A_2$ is minimum then $(\pi\, l_1) : l_2$ is equal to :

Options
1. $4:1$
2. $6:1$
3. $1:6$
4. $3:1$

Question Type : **MCQ**
Question ID : **366694608**
Option 1 ID : **3666941832**
Option 2 ID : **3666941830**
Option 3 ID : **3666941831**
Option 4 ID : **3666941829**
Status : **Answered**
Chosen Option : **3**

Q.69 If the maximum distance of normal to the ellipse $\frac{x^2}{4}+\frac{y^2}{b^2}=1, b<2$, from the origin is 1, then the eccentricity of the ellipse is :

Options
1. $\frac{\sqrt{3}}{4}$
2. $\frac{1}{2}$
3. $\frac{1}{\sqrt{2}}$
4. $\frac{\sqrt{3}}{2}$

Question Type : **MCQ**
Question ID : **366694614**
Option 1 ID : **3666941854**
Option 2 ID : **3666941856**
Option 3 ID : **3666941853**
Option 4 ID : **3666941855**
Status : **Answered**
Chosen Option : **4**

aglasem.com

Q.70 Let $\vec{a}=2\hat{i}+\hat{j}+\hat{k}$, and $\vec{b}$ and $\vec{c}$ be two nonzero vectors such that $|\vec{a}+\vec{b}+\vec{c}|=|\vec{a}+\vec{b}-\vec{c}|$ and $\vec{b}\cdot\vec{c}=0$. Consider the following two statements:

(A) $|\vec{a}+\lambda\vec{c}|\geq|\vec{a}|$ for all $\lambda\in\mathbb{R}$.

(B) $\vec{a}$ and $\vec{c}$ are always parallel.

Then,

Options
1. only (B) is correct
2. neither (A) nor (B) is correct
3. only (A) is correct
4. both (A) and (B) are correct

Question Type : **MCQ**
Question ID : **366694617**
Option 1 ID : **3666941866**
Option 2 ID : **3666941868**
Option 3 ID : **3666941865**
Option 4 ID : **3666941867**
Status : **Answered**
Chosen Option : **3**

Q.71 (S1) $(p\Rightarrow q)\vee(p\wedge(\sim q))$ is a tautology

(S2) $((\sim p)\Rightarrow(\sim q))\wedge((\sim p)\vee q)$ is a contradiction.

Then

Options
1. both (S1) and (S2) are wrong
2. only (S1) is correct
3. only (S2) is correct
4. both (S1) and (S2) are correct

Question Type : **MCQ**
Question ID : **366694620**
Option 1 ID : **3666941880**
Option 2 ID : **3666941877**
Option 3 ID : **3666941878**
Option 4 ID : **3666941879**
Status : **Answered**
Chosen Option : **4**

aglasem.com

Q.72 Let $\alpha \in (0, 1)$ and $\beta = \log_e(1-\alpha)$. Let $P_n(x) = x + \frac{x^2}{2} + \frac{x^3}{3} + ... + \frac{x^n}{n}, x \in (0,1)$.

Then the integral $\int_0^{\alpha} \frac{t^{50}}{1-t} dt$ is equal to

Options

1. $P_{50}(\alpha) - \beta$
2. $-(\beta + P_{50}(\alpha))$
3. $\beta + P_{50}(\alpha)$
4. $\beta - P_{50}(\alpha)$

Question Type : **MCQ**
Question ID : **366694610**
Option 1 ID : **3666941839**
Option 2 ID : **3666941837**
Option 3 ID : **3666941840**
Option 4 ID : **3666941838**
Status : **Answered**
Chosen Option : **3**

Q.73 For all $z \in \mathbb{C}$ on the curve $\mathbb{C}_1 : |z| = 4$, let the locus of the point $z + \frac{1}{z}$ be the curve $\mathbb{C}_2$. Then :

Options

1. the curve C_2 lies inside C_1
2. the curves C_1 and C_2 intersect at 4 points
3. the curve C_1 lies inside C_2
4. the curves C_1 and C_2 intersect at 2 points

Question Type : **MCQ**
Question ID : **366694603**
Option 1 ID : **3666941810**
Option 2 ID : **3666941812**
Option 3 ID : **3666941809**
Option 4 ID : **3666941811**
Status : **Answered**
Chosen Option : **2**

Q.74 Let a differentiable function f satisfy $f(x) + \int_3^x \frac{f(t)}{t} dt = \sqrt{x+1}, x \geq 3$. Then

$12 f(8)$ is equal to :

Options

1. 19
2. 17
3. 1
4. 34

Question Type : **MCQ**
Question ID : **366694612**
Option 1 ID : **3666941846**
Option 2 ID : **3666941847**
Option 3 ID : **3666941848**
Option 4 ID : **3666941845**
Status : **Answered**
Chosen Option : **3**

aglasem.com

Q.75 Let a circle C_1 be obtained on rolling the circle $x^2 + y^2 - 4x - 6y + 11 = 0$ upwards 4 units on the tangent T to it at the point (3, 2). Let C_2 be the image of C_1 in T. Let A and B be the centers of circles C_1 and C_2 respectively, and M and N be respectively the feet of perpendiculars drawn from A and B on the x-axis. Then the area of the trapezium AMNB is :

Options

1. $3 + 2\sqrt{2}$
2. $4\left(1 + \sqrt{2}\right)$
3. $2\left(1 + \sqrt{2}\right)$
4. $2\left(2 + \sqrt{2}\right)$

Question Type : **MCQ**
Question ID : **366694613**
Option 1 ID : **3666941852**
Option 2 ID : **3666941849**
Option 3 ID : **3666941850**
Option 4 ID : **3666941851**
Status : **Answered**
Chosen Option : **3**

Q.76 For the system of linear equations

$x + y + z = 6$

$\alpha x + \beta y + 7z = 3$

$x + 2y + 3z = 14,$

which of the following is **NOT** true ?

Options

1. If $\alpha = \beta$ and $\alpha \neq 7$, then the system has a unique solution
2. For every point $(\alpha, \beta) \neq (7, 7)$ on the line $x - 2y + 7 = 0$, the system has infinitely many solutions
3. If $\alpha = \beta = 7$, then the system has no solution
4. There is a unique point (α, β) on the line $x + 2y + 18 = 0$ for which the system has infinitely many solutions

Question Type : **MCQ**
Question ID : **366694605**
Option 1 ID : **3666941817**
Option 2 ID : **3666941820**
Option 3 ID : **3666941819**
Option 4 ID : **3666941818**
Status : **Answered**
Chosen Option : **3**

aglasem.com

Q.77 A bag contains 6 balls. Two balls are drawn from it at random and both are found to be black. The probability that the bag contains at least 5 black balls is

Options

1. $\frac{3}{7}$
2. $\frac{5}{7}$
3. $\frac{5}{6}$
4. $\frac{2}{7}$

Question Type : **MCQ**
Question ID : **366694618**
Option 1 ID : **3666941871**
Option 2 ID : **3666941869**
Option 3 ID : **3666941870**
Option 4 ID : **3666941872**
Status : **Answered**
Chosen Option : **3**

Q.78 Let $y = f(x) = \sin^3\left(\frac{\pi}{3}\left(\cos\left(\frac{\pi}{3\sqrt{2}}\left(-4x^3+5x^2+1\right)^{\frac{3}{2}}\right)\right)\right)$. Then, at $x = 1$,

Options

1. $2y' + \sqrt{3}\pi^2 y = 0$
2. $2y' + 3\pi^2 y = 0$
3. $y' + 3\pi^2 y = 0$
4. $\sqrt{2}y' - 3\pi^2 y = 0$

Question Type : **MCQ**
Question ID : **366694607**
Option 1 ID : **3666941826**
Option 2 ID : **3666941828**
Option 3 ID : **3666941825**
Option 4 ID : **3666941827**
Status : **Answered**
Chosen Option : **4**

Q.79 If $\sin^{-1}\frac{\alpha}{17} + \cos^{-1}\frac{4}{5} - \tan^{-1}\frac{77}{36} = 0$, $0 < \alpha < 13$, then $\sin^{-1}(\sin\alpha) + \cos^{-1}(\cos\alpha)$ is equal to

Options

1. π
2. 16
3. 0
4. $16 - 5\pi$

Question Type : **MCQ**
Question ID : **366694619**
Option 1 ID : **3666941874**
Option 2 ID : **3666941876**
Option 3 ID : **3666941873**
Option 4 ID : **3666941875**
Status : **Answered**
Chosen Option : **3**

aglasem.com

Q.80 Let y = $f(x)$ represent a parabola with focus $\left(-\frac{1}{2}, 0\right)$ and directrix $y = -\frac{1}{2}$.

Then $S = \left\{x \in \mathbb{R} : \tan^{-1}\left(\sqrt{f(x)}\right) + \sin^{-1}\left(\sqrt{f(x)+1}\right) = \frac{\pi}{2}\right\}$:

Options
1. contains exactly one element
2. is an infinite set
3. is an empty set
4. contains exactly two elements

Question Type : **MCQ**
Question ID : **366694615**
Option 1 ID : **3666941858**
Option 2 ID : **3666941860**
Option 3 ID : **3666941857**
Option 4 ID : **3666941859**
Status : **Answered**
Chosen Option : **4**

Section : **Mathematics Section B**

Q.81 If the variance of the frequency distribution

x_i	2	3	4	5	6	7	8
Frequency f_i	3	6	16	α	9	5	6

is 3, then α is equal to _____.

Given **24**
Answer :

Question Type : **SA**
Question ID : **366694629**
Status : **Answered**

Q.82 Let for $x \in \mathbb{R}$,

$$f(x) = \frac{x + |x|}{2} \text{ and } g(x) = \begin{cases} x, & x < 0 \\ x^2, & x \geq 0 \end{cases}.$$

Then area bounded by the curve $y = (fog)(x)$ and the lines $y = 0$, $2y - x = 15$ is equal to _____.

Given **0**
Answer :

Question Type : **SA**
Question ID : **366694626**
Status : **Answered**

Q.83 Let 5 digit numbers be constructed using the digits 0, 2, 3, 4, 7, 9 with repetition allowed, and are arranged in ascending order with serial numbers. Then the serial number of the number 42923 is _____.

Given **168**
Answer :

Question Type : **SA**
Question ID : **366694621**
Status : **Answered**

aglasem.com

Q.84 Let θ be the angle between the planes $P_1 : \vec{r} \cdot \left(\hat{i} + \hat{j} + 2\hat{k}\right) = 9$ and $P_2 : \vec{r} \cdot \left(2\hat{i} - \hat{j} + \hat{k}\right) = 15$. Let L be the line that meets P_2 at the point (4, –2, 5) and makes an angle θ with the normal of P_2. If α is the angle between L and P_2, then $\left(\tan^2\theta\right)\left(\cot^2\alpha\right)$ is equal to _____.

Given **1**
Answer :

Question Type : **SA**
Question ID : **366694630**
Status : **Answered**

Q.85 Let $a_1, a_2, \ldots, a_n$ be in A.P. If $a_5 = 2a_7$ and $a_{11} = 18$, then $12\left(\frac{1}{\sqrt{a_{10}} + \sqrt{a_{11}}} + \frac{1}{\sqrt{a_{11}} + \sqrt{a_{12}}} + \ldots + \frac{1}{\sqrt{a_{17}} + \sqrt{a_{18}}}\right)$ is equal to _____.

Given **--**
Answer :

Question Type : **SA**
Question ID : **366694625**
Status : **Not Answered**

Q.86 Let $\vec{a}$ and $\vec{b}$ be two vectors such that $|\vec{a}| = \sqrt{14}$, $|\vec{b}| = \sqrt{6}$ and $|\vec{a} \times \vec{b}| = \sqrt{48}$.

Then $\left(\vec{a} \cdot \vec{b}\right)^2$ is equal to _____.

Given **--**
Answer :

Question Type : **SA**
Question ID : **366694627**
Status : **Not Answered**

Q.87 The remainder on dividing 5^{99} by 11 is _____.

Given **--**
Answer :

Question Type : **SA**
Question ID : **366694622**
Status : **Not Answered**

Q.88 Let the line $L : \frac{x-1}{2} = \frac{y+1}{-1} = \frac{z-3}{1}$ intersect the plane $2x + y + 3z = 16$ at the point P. Let the point Q be the foot of perpendicular from the point $R(1, -1, -3)$ on the line L. If α is the area of triangle PQR, then α^2 is equal to _____.

Given **--**
Answer :

Question Type : **SA**
Question ID : **366694628**
Status : **Not Answered**

aglasem.com

Q.89 Number of 4-digit numbers that are less than or equal to 2800 and either divisible by 3 or by 11, is equal to _____.

Given **700**
Answer :

Question Type : **SA**
Question ID : **366694623**
Status : **Answered**

Q.90 Let $\alpha > 0$, be the smallest number such that the expansion of $\left(x^{\frac{2}{3}} + \frac{2}{x^3}\right)^{30}$ has a term $\beta x^{-\alpha}$, $\beta \in \mathbb{N}$. Then α is equal to _____.

Given **--**
Answer :

Question Type : **SA**
Question ID : **366694624**
Status : **Not Answered**

aglasem.com