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Subject	B. Tech

Section : Mathematics Section A

Q.1 The value of $k \in \mathbb{N}$ for which the integral $I_n = \int_0^1 (1-x^k)^n dx$, $n \in \mathbb{N}$, satisfies

$$147 I_{20} = 148 I_{21} \text{ is}$$

Options 1. 7

2. 8

3. 10

4. 14

Question Type : MCQ

Question ID : 68019114344

Option 1 ID : 68019156034

Option 2 ID : 68019156031

Option 3 ID : 68019156032

Option 4 ID : 68019156033

Status : Not Answered

Chosen Option : --

Q.2 Let $H: \frac{-x^2}{a^2} + \frac{y^2}{b^2} = 1$ be the hyperbola, whose eccentricity is $\sqrt{3}$ and the length of the latus rectum is $4\sqrt{3}$. Suppose the point $(\alpha, 6)$, $\alpha > 0$ lies on H . If β is the product of the focal distances of the point $(\alpha, 6)$, then $\alpha^2 + \beta$ is equal to

Options 1. 170

2. 169

3. 172

4. 171

Question Type : MCQ

Question ID : 68019114349

Option 1 ID : 68019156052

Option 2 ID : 68019156051

Option 3 ID : 68019156054

Option 4 ID : 68019156053

Status : Not Answered

Chosen Option : --

Q.3 For the function $f(x) = (\cos x) - x + 1$, $x \in \mathbb{R}$, between the following two statements

(S1) $f(x) = 0$ for only one value of x in $[0, \pi]$.

(S2) $f(x)$ is decreasing in $\left[0, \frac{\pi}{2}\right]$ and increasing in $\left[\frac{\pi}{2}, \pi\right]$.

Options 1. Only (S2) is correct.

2. Both (S1) and (S2) are correct.

3. Only (S1) is correct.

4. Both (S1) and (S2) are incorrect.

Question Type : MCQ

Question ID : 68019114340

Option 1 ID : 68019156017

Option 2 ID : 68019156015

Option 3 ID : 68019156016

Option 4 ID : 68019156018

Status : Answered

Chosen Option : 2

Q.4 Let $f(x) = 4\cos^3 x + 3\sqrt{3}\cos^2 x - 10$. The number of points of local maxima of f in interval $(0, 2\pi)$ is

Options 1. 2

2. 1

3. 3

4. 4

Question Type : MCQ

Question ID : 68019114342

Option 1 ID : 68019156024

Option 2 ID : 68019156023

Option 3 ID : 68019156025

Option 4 ID : 68019156026

Status : Not Answered

Chosen Option : --

Q.5 If $\sin x = -\frac{3}{5}$, where $\pi < x < \frac{3\pi}{2}$, then $80(\tan^2 x - \cos x)$ is equal to

Options 1. 109

2. 108

3. 19

4. 18

Question Type : MCQ

Question ID : 68019114353

Option 1 ID : 68019156067

Option 2 ID : 68019156068

Option 3 ID : 68019156069

Option 4 ID : 68019156070

Status : Answered

Chosen Option : 2

Q.6 Let $y = y(x)$ be the solution of the differential equation

$$(1+y^2)e^{\tan x} dx + \cos^2 x (1 + e^{2\tan x}) dy = 0, y(0) = 1. \text{ Then } y\left(\frac{\pi}{4}\right) \text{ is equal to}$$

Options

1. $\frac{1}{e}$
2. $\frac{2}{e^2}$
3. $\frac{1}{e^2}$
4. $\frac{2}{e}$

Question Type : MCQ

Question ID : 68019114346

Option 1 ID : 68019156040

Option 2 ID : 68019156042

Option 3 ID : 68019156039

Option 4 ID : 68019156041

Status : Not Answered

Chosen Option : --

Q.7

$$\text{Let } A = \begin{bmatrix} 2 & a & 0 \\ 1 & 3 & 1 \\ 0 & 5 & b \end{bmatrix}. \text{ If } A^3 = 4A^2 - A - 21I, \text{ where } I \text{ is the identity matrix of order}$$

3×3 , then $2a + 3b$ is equal to

Options

1. -13
2. -9
3. -12
4. -10

Question Type : MCQ

Question ID : 68019114337

Option 1 ID : 68019156004

Option 2 ID : 68019156003

Option 3 ID : 68019156005

Option 4 ID : 68019156006

Status : Not Attempted and Marked For Review

Chosen Option : --

Q.8 The number of critical points of the function $f(x) = (x - 2)^{2/3} (2x + 1)$ is

Options 1. 2

2. 0

3. 1

4. 3

Question Type : MCQ

Question ID : 68019114341

Option 1 ID : 68019156021

Option 2 ID : 68019156019

Option 3 ID : 68019156020

Option 4 ID : 68019156022

Status : Answered

Chosen Option : 4

Q.9 If the shortest distance between the lines

$$L_1 : \vec{r} = (2 + \lambda)\hat{i} + (1 - 3\lambda)\hat{j} + (3 + 4\lambda)\hat{k}, \quad \lambda \in \mathbb{R}$$

$$L_2 : \vec{r} = 2(1 + \mu)\hat{i} + 3(1 + \mu)\hat{j} + (5 + \mu)\hat{k}, \quad \mu \in \mathbb{R}$$

is $\frac{m}{\sqrt{n}}$, where $\gcd(m, n) = 1$, then the value of $m + n$ equals

Options 1. 384

2. 377

3. 390

4. 387

Question Type : MCQ

Question ID : 68019114347

Option 1 ID : 68019156044

Option 2 ID : 68019156043

Option 3 ID : 68019156045

Option 4 ID : 68019156046

Status : Not Answered

Chosen Option : --

Q.10 The set of all α , for which the vectors $\vec{a} = \alpha t \hat{i} + 6\hat{j} - 3\hat{k}$ and $\vec{b} = t\hat{i} - 2\hat{j} - 2\alpha t\hat{k}$ are inclined at an obtuse angle for all $t \in \mathbb{R}$, is

- Options
1. $\left(-\frac{4}{3}, 0\right]$
 2. $\left(-\frac{4}{3}, 1\right)$
 3. $(-2, 0]$
 4. $[0, 1)$

Question Type : MCQ

Question ID : 68019114351

Option 1 ID : 68019156061

Option 2 ID : 68019156062

Option 3 ID : 68019156060

Option 4 ID : 68019156059

Status : Not Answered

Chosen Option : --

Q.11 Let $f(x)$ be a positive function such that the area bounded by $y = f(x)$, $y = 0$ from $x = 0$ to $x = a > 0$ is $e^{-a} + 4a^2 + a - 1$. Then the differential equation, whose general solution is $y = c_1 f(x) + c_2$, where c_1 and c_2 are arbitrary constants, is

- Options
1. $(8e^x - 1) \frac{d^2 y}{dx^2} - \frac{dy}{dx} = 0$
 2. $(8e^x + 1) \frac{d^2 y}{dx^2} + \frac{dy}{dx} = 0$
 3. $(8e^x - 1) \frac{d^2 y}{dx^2} + \frac{dy}{dx} = 0$
 4. $(8e^x + 1) \frac{d^2 y}{dx^2} - \frac{dy}{dx} = 0$

Question Type : MCQ

Question ID : 68019114345

Option 1 ID : 68019156035

Option 2 ID : 68019156037

Option 3 ID : 68019156036

Option 4 ID : 68019156038

Status : Answered

Chosen Option : 4

Q.12 Let the sum of two positive integers be 24. If the probability, that their product is not less than $\frac{3}{4}$ times their greatest possible product, is $\frac{m}{n}$, where $\gcd(m, n) = 1$, then $n - m$ equals

- Options 1. 11
2. 8
3. 10
4. 9

Question Type : **MCQ**

Question ID : **68019114352**

Option 1 ID : **68019156063**

Option 2 ID : **68019156064**

Option 3 ID : **68019156066**

Option 4 ID : **68019156065**

Status : **Not Answered**

Chosen Option : --

Q.13 Let $[t]$ be the greatest integer less than or equal to t . Let A be the set of all prime factors of 2310 and $f : A \rightarrow \mathbb{Z}$ be the function $f(x) = \left\lceil \log_2 \left(x^2 + \left\lceil \frac{x^3}{5} \right\rceil \right) \right\rceil$. The number of one-to-one functions from A to the range of f is

- Options 1. 20
2. 24
3. 25
4. 120

Question Type : **MCQ**

Question ID : **68019114334**

Option 1 ID : **68019155991**

Option 2 ID : **68019155992**

Option 3 ID : **68019155994**

Option 4 ID : **68019155993**

Status : **Not Answered**

Chosen Option : --

Q.14 Let $I(x) = \int \frac{6}{\sin^2 x (1 - \cot x)^2} dx$. If $I(0) = 3$, then $I\left(\frac{\pi}{12}\right)$ is equal to

- Options 1. $6\sqrt{3}$
2. $\sqrt{3}$
3. $3\sqrt{3}$
4. $2\sqrt{3}$

Question Type : **MCQ**

Question ID : **68019114343**

Option 1 ID : **68019156029**

Option 2 ID : **68019156030**

Option 3 ID : **68019156028**

Option 4 ID : **68019156027**

Status : **Answered**

Chosen Option : 3

Q.15 Let $P(x, y, z)$ be a point in the first octant, whose projection in the xy -plane is the point Q . Let $OP = \gamma$; the angle between OQ and the positive x -axis be θ ; and the angle between OP and the positive z -axis be ϕ , where O is the origin. Then the distance of P from the x -axis is

Options

1. $\gamma\sqrt{1 + \cos^2 \theta \sin^2 \phi}$
2. $\gamma\sqrt{1 + \cos^2 \phi \sin^2 \theta}$
3. $\gamma\sqrt{1 - \sin^2 \theta \cos^2 \phi}$
4. $\gamma\sqrt{1 - \sin^2 \phi \cos^2 \theta}$

Question Type : **MCQ**

Question ID : **68019114350**

Option 1 ID : **68019156057**

Option 2 ID : **68019156058**

Option 3 ID : **68019156056**

Option 4 ID : **68019156055**

Status : **Not Answered**

Chosen Option : --

Q.16 Let z be a complex number such that $|z + 2| = 1$ and $\operatorname{Im}\left(\frac{z+1}{z+2}\right) = \frac{1}{5}$. Then the value

of $\left|\operatorname{Re}\left(\overline{z+2}\right)\right|$ is

Options

1. $\frac{2\sqrt{6}}{5}$
2. $\frac{\sqrt{6}}{5}$
3. $\frac{24}{5}$
4. $\frac{1+\sqrt{6}}{5}$

Question Type : **MCQ**

Question ID : **68019114335**

Option 1 ID : **68019155995**

Option 2 ID : **68019155997**

Option 3 ID : **68019155996**

Option 4 ID : **68019155998**

Status : **Not Answered**

Chosen Option : --

Q.17 The equations of two sides AB and AC of a triangle ABC are $4x + y = 14$ and $3x - 2y = 5$, respectively. The point $\left(2, -\frac{4}{3}\right)$ divides the third side BC internally in the ratio 2:1. the equation of the side BC is

- Options
1. $x + 3y + 2 = 0$
 2. $x - 3y - 6 = 0$
 3. $x + 6y + 6 = 0$
 4. $x - 6y - 10 = 0$

Question Type : MCQ

Question ID : 68019114338

Option 1 ID : 68019156007

Option 2 ID : 68019156008

Option 3 ID : 68019156009

Option 4 ID : 68019156010

Status : Marked For Review

Chosen Option : 4

Q.18 Let the circles $C_1 : (x - \alpha)^2 + (y - \beta)^2 = r_1^2$ and $C_2 : (x - 8)^2 + \left(y - \frac{15}{2}\right)^2 = r_2^2$ touch each other externally at the point (6, 6). If the point (6, 6) divides the line segment joining the centres of the circles C_1 and C_2 internally in the ratio 2:1, then $(\alpha + \beta) + 4(r_1^2 + r_2^2)$ equals

- Options
1. 145
 2. 130
 3. 125
 4. 110

Question Type : MCQ

Question ID : 68019114348

Option 1 ID : 68019156050

Option 2 ID : 68019156049

Option 3 ID : 68019156048

Option 4 ID : 68019156047

Status : Marked For Review

Chosen Option : 1

Q.19 The sum of all the solutions of the equation $(8)^{2x} - 16 \cdot (8)^x + 48 = 0$ is :

- Options
1. $\log_8(6)$
 2. $1 + \log_8(6)$
 3. $1 + \log_6(8)$
 4. $\log_8(4)$

Question Type : MCQ

Question ID : 68019114336

Option 1 ID : 68019156000

Option 2 ID : 68019156002

Option 3 ID : 68019156001

Option 4 ID : 68019155999

Status : Answered

Chosen Option : 2

Q.20 If the set $R = \{(a, b) : a + 5b = 42, a, b \in \mathbb{N}\}$ has m elements and

$$\sum_{n=1}^m (1 - i^{n!}) = x + iy, \text{ where } i = \sqrt{-1}, \text{ then the value of } m + x + y \text{ is}$$

Options 1. 4

2. 5

3. 12

4. 8

Question Type : MCQ

Question ID : 68019114339

Option 1 ID : 68019156014

Option 2 ID : 68019156013

Option 3 ID : 68019156011

Option 4 ID : 68019156012

Status : Not Answered

Chosen Option : --

Section : Mathematics Section B

Q.21 Let $A = \begin{bmatrix} 2 & -1 \\ 1 & 1 \end{bmatrix}$. If the sum of the diagonal elements of A^{13} is 3^n , then n is equal to _____.

Given --

Answer :

Question Type : SA

Question ID : 68019114355

Status : Not Answered

Q.22 Let $\vec{a} = 9\hat{i} - 13\hat{j} + 25\hat{k}$, $\vec{b} = 3\hat{i} + 7\hat{j} - 13\hat{k}$ and $\vec{c} = 17\hat{i} - 2\hat{j} + \hat{k}$ be three given vectors. If \vec{r} is a vector such that $\vec{r} \times \vec{a} = (\vec{b} + \vec{c}) \times \vec{a}$ and

$$\vec{r} \cdot (\vec{b} - \vec{c}) = 0, \text{ then } \frac{|593\vec{r} + 67\vec{a}|^2}{(593)^2} \text{ is equal to } \underline{\hspace{2cm}}.$$

Given --

Answer :

Question Type : SA

Question ID : 68019114361

Status : Not Answered

Q.23 The number of 3-digit numbers, formed using the digits 2, 3, 4, 5 and 7, when the repetition of digits is not allowed, and which are not divisible by 3, is equal to _____.

Given --

Answer :

Question Type : SA

Question ID : 68019114356

Status : Not Answered

Q.24 The value of $\lim_{x \rightarrow 0} 2 \left(\frac{1 - \cos x \sqrt{\cos 2x} \sqrt[3]{\cos 3x} \dots \sqrt[10]{\cos 10x}}{x^2} \right)$ is _____.

Given --
Answer :

Question Type : **SA**
Question ID : **68019114359**
Status : **Not Answered**

Q.25 If the range of $f(\theta) = \frac{\sin^4 \theta + 3 \cos^2 \theta}{\sin^4 \theta + \cos^2 \theta}$, $\theta \in \mathbb{R}$ is $[a, \beta]$, then the sum of the infinite G.P., whose first term is 64 and the common ratio is $\frac{a}{\beta}$, is equal to _____.

Given --
Answer :

Question Type : **SA**
Question ID : **68019114354**
Status : **Not Answered**

Q.26 Let $\alpha = \sum_{r=0}^n (4r^2 + 2r + 1) {}^nC_r$ and $\beta = \left(\sum_{r=0}^n \frac{{}^nC_r}{r+1} \right) + \frac{1}{n+1}$. If $140 < \frac{2\alpha}{\beta} < 281$, then the value of n is _____.

Given --
Answer :

Question Type : **SA**
Question ID : **68019114357**
Status : **Not Answered**

Q.27 Let the positive integers be written in the form :

```

      1
    2   3
  4   5   6
7  8   9   10
.  .   .   .

```

If the k^{th} row contains exactly k numbers for every natural number k , then the row in which the number 5310 will be, is _____.

Given --
Answer :

Question Type : **SA**
Question ID : **68019114358**
Status : **Not Answered**

Q.28 Three balls are drawn at random from a bag containing 5 blue and 4 yellow balls. Let the random variables X and Y respectively denote the number of blue and yellow balls. If \bar{X} and \bar{Y} are the means of X and Y respectively, then $7\bar{X} + 4\bar{Y}$ is equal to _____.

Given --
Answer :

Question Type : SA
Question ID : 68019114363
Status : Not Answered

Q.29 Let the area of the region enclosed by the curve $y = \min\{\sin x, \cos x\}$ and the x -axis between $x = -\pi$ to $x = \pi$ be A . Then A^2 is equal to _____.

Given --
Answer :

Question Type : SA
Question ID : 68019114360
Status : Not Attempted and Marked For Review

Q.30 If the orthocentre of the triangle formed by the lines $2x + 3y - 1 = 0$, $x + 2y - 1 = 0$ and $ax + by - 1 = 0$, is the centroid of another triangle, whose circumcentre and orthocentre respectively are $(3, 4)$ and $(-6, -8)$, then the value of $|a - b|$ is _____.

Given --
Answer :

Question Type : SA
Question ID : 68019114362
Status : Not Answered

Section : Physics Section A

Q.31 Young's modulus is determined by the equation given by $Y = 49000 \frac{m \text{ dyne}}{l \text{ cm}^2}$ where M is the mass and l is the extension of wire used in the experiment. Now error in Young modulus (Y) is estimated by taking data from M - l plot in graph paper. The smallest scale divisions are 5 g and 0.02 cm along load axis and extension axis respectively. If the value of M and l are 500 g and 2 cm respectively then percentage error of Y is :

- Options
1. 0.5 %
 2. 2 %
 3. 0.2 %
 4. 0.02 %

Question Type : MCQ
Question ID : 68019114381
Option 1 ID : 68019156152
Option 2 ID : 68019156151
Option 3 ID : 68019156150
Option 4 ID : 68019156149
Status : Not Answered
Chosen Option : --

Q.32 Paramagnetic substances:

- A. align themselves along the directions of external magnetic field.
- B. attract strongly towards external magnetic field.
- C. has susceptibility little more than zero.
- D. move from a region of strong magnetic field to weak magnetic field.

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

Options 1. A, B, C, D

2. B, D Only

3. A, C Only

4. A, B, C Only

Question Type : MCQ

Question ID : 68019114374

Option 1 ID : 68019156124

Option 2 ID : 68019156123

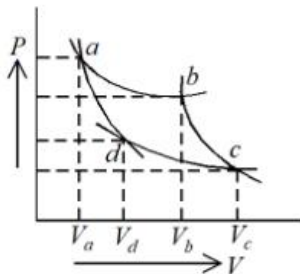
Option 3 ID : 68019156122

Option 4 ID : 68019156121

Status : Answered

Chosen Option : 3

Q.33 Two different adiabatic paths for the same gas intersect two isothermal curves as shown in P-V diagram. The relation between the ratio $\frac{V_a}{V_d}$ and the ratio $\frac{V_b}{V_c}$ is:



Options

1. $\frac{V_a}{V_d} \neq \frac{V_b}{V_c}$

2. $\frac{V_a}{V_d} = \frac{V_b}{V_c}$

3. $\frac{V_a}{V_d} = \left(\frac{V_b}{V_c}\right)^2$

4. $\frac{V_a}{V_d} = \left(\frac{V_b}{V_c}\right)^{-1}$

Question Type : MCQ

Question ID : 68019114370

Option 1 ID : 68019156106

Option 2 ID : 68019156105

Option 3 ID : 68019156108

Option 4 ID : 68019156107

Status : Answered

Chosen Option : 2

Q.34 In an expression $a \times 10^b$:

- Options
1. b is order of magnitude for $a \geq 5$
 2. b is order of magnitude for $5 < a \leq 10$
 3. b is order of magnitude for $a \leq 5$
 4. a is order of magnitude for $b \leq 5$

Question Type : MCQ

Question ID : 68019114364

Option 1 ID : 68019156084

Option 2 ID : 68019156082

Option 3 ID : 68019156083

Option 4 ID : 68019156081

Status : Not Answered

Chosen Option : --

Q.35 A player caught a cricket ball of mass 150 g moving at a speed of 20 m/s. If the catching process is completed in 0.1 s, the magnitude of force exerted by the ball on the hand of the player is:

- Options
1. 150 N
 2. 3 N
 3. 300 N
 4. 30 N

Question Type : MCQ

Question ID : 68019114367

Option 1 ID : 68019156093

Option 2 ID : 68019156094

Option 3 ID : 68019156096

Option 4 ID : 68019156095

Status : Answered

Chosen Option : 4

Q.36 A clock has 75 cm, 60 cm long second hand and minute hand respectively. In 30 minutes duration the tip of second hand will travel x distance more than the tip of minute hand. The value of x in meter is nearly (Take $\pi = 3.14$) :

- Options
1. 118.9
 2. 220.0
 3. 139.4
 4. 140.5

Question Type : MCQ

Question ID : 68019114365

Option 1 ID : 68019156085

Option 2 ID : 68019156088

Option 3 ID : 68019156086

Option 4 ID : 68019156087

Status : Not Attempted and
Marked For Review

Chosen Option : --

Q.37 Average force exerted on a non-reflecting surface at normal incidence is 2.4×10^{-4} N. If 360 W/cm^2 is the light energy flux during span of 1 hour 30 minutes, Then the area of the surface is:

- Options
1. 0.2 m^2
 2. 0.02 m^2
 3. 0.1 m^2
 4. 20 m^2

Question Type : MCQ

Question ID : 68019114375

Option 1 ID : 68019156125

Option 2 ID : 68019156127

Option 3 ID : 68019156126

Option 4 ID : 68019156128

Status : Answered

Chosen Option : 2

Q.38 A stationary particle breaks into two parts of masses m_A and m_B which move with velocities v_A and v_B respectively. The ratio of their kinetic energies ($K_B : K_A$) is :

- Options
1. $v_B : v_A$
 2. $m_B : m_A$
 3. $m_B v_B : m_A v_A$
 4. $1 : 1$

Question Type : MCQ

Question ID : 68019114366

Option 1 ID : 68019156089

Option 2 ID : 68019156090

Option 3 ID : 68019156091

Option 4 ID : 68019156092

Status : Answered

Chosen Option : 4

Q.39 Correct Bernoulli's equation is (symbols have their usual meaning) :

- Options
1. $P + \rho gh + \rho v^2 = \text{constant}$
 2. $P + mgh + \frac{1}{2} mv^2 = \text{constant}$
 3. $P + \rho gh + \frac{1}{2} \rho v^2 = \text{constant}$
 4. $P + \frac{1}{2} \rho gh + \frac{1}{2} \rho v^2 = \text{constant}$

Question Type : MCQ

Question ID : 68019114369

Option 1 ID : 68019156104

Option 2 ID : 68019156101

Option 3 ID : 68019156103

Option 4 ID : 68019156102

Status : Answered

Chosen Option : 3

Q.40 A proton and an electron are associated with same de-Broglie wavelength. The ratio of their kinetic energies is:

(Assume $h=6.63 \times 10^{-34}$ J s, $m_e = 9.0 \times 10^{-31}$ kg and $m_p = 1836$ times m_e)

Options 1. 1: 1836

2. 1: $\sqrt{1836}$

3. 1: $\frac{1}{1836}$

4. 1: $\frac{1}{\sqrt{1836}}$

Question Type : MCQ

Question ID : 68019114377

Option 1 ID : 68019156133

Option 2 ID : 68019156134

Option 3 ID : 68019156135

Option 4 ID : 68019156136

Status : Answered

Chosen Option : 3

Q.41 A LCR circuit is at resonance for a capacitor C, inductance L and resistance R. Now the value of resistance is halved keeping all other parameters same. The current amplitude at resonance will be now:

Options 1. same

2. double

3. halved

4. Zero

Question Type : MCQ

Question ID : 68019114383

Option 1 ID : 68019156157

Option 2 ID : 68019156158

Option 3 ID : 68019156159

Option 4 ID : 68019156160

Status : Answered

Chosen Option : 1

Q.42 Two charged conducting spheres of radii a and b are connected to each other by a conducting wire. The ratio of charges of the two spheres respectively is:

Options 1. $\frac{b}{a}$

2. $\frac{a}{b}$

3. ab

4. \sqrt{ab}

Question Type : MCQ

Question ID : 68019114378

Option 1 ID : 68019156138

Option 2 ID : 68019156137

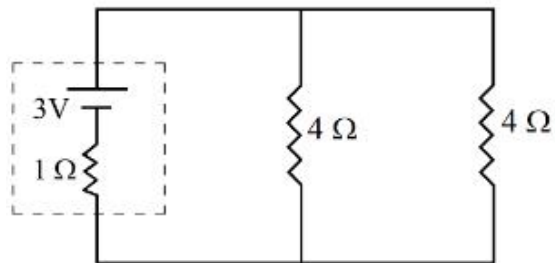
Option 3 ID : 68019156139

Option 4 ID : 68019156140

Status : Answered

Chosen Option : 1

Q.43 In the given circuit, the terminal potential difference of the cell is :



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

Question Type : MCQ

Question ID : 68019114373

Option 1 ID : 68019156118

Option 2 ID : 68019156120

Option 3 ID : 68019156119

Option 4 ID : 68019156117

Status : Not Attempted and
Marked For Review

Chosen Option : --

Q.44 Three bodies A, B and C have equal kinetic energies and their masses are 400 g, 1.2 kg and 1.6 kg respectively. The ratio of their linear momenta is :

- Options
1. $1 : \sqrt{3} : 2$
 2. $1 : \sqrt{3} : \sqrt{2}$
 3. $\sqrt{2} : \sqrt{3} : 1$
 4. $\sqrt{3} : \sqrt{2} : 1$

Question Type : MCQ

Question ID : 68019114368

Option 1 ID : 68019156097

Option 2 ID : 68019156098

Option 3 ID : 68019156100

Option 4 ID : 68019156099

Status : Answered

Chosen Option : 1

Q.45 Two planets A and B having masses m_1 and m_2 move around the sun in circular orbits of r_1 and r_2 radii respectively. If angular momentum of A is L and that of B is $3L$, the ratio of time period $\left(\frac{T_A}{T_B}\right)$ is:

Options

1. $\left(\frac{r_2}{r_1}\right)^{\frac{3}{2}}$
2. $27\left(\frac{m_1}{m_2}\right)^3$
3. $\frac{1}{27}\left(\frac{m_2}{m_1}\right)^3$
4. $\left(\frac{r_1}{r_2}\right)^3$

Question Type : **MCQ**

Question ID : **68019114371**

Option 1 ID : **68019156112**

Option 2 ID : **68019156110**

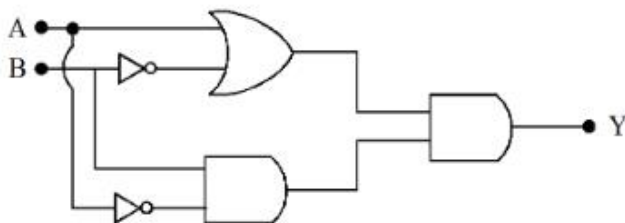
Option 3 ID : **68019156109**

Option 4 ID : **68019156111**

Status : **Answered**

Chosen Option : **3**

Q.46 The output Y of following circuit for given inputs is :



Options 1. $A \cdot B$

2. $\bar{A} \cdot B$

3. $A \cdot B(A + B)$

4. 0

Question Type : **MCQ**

Question ID : **68019114380**

Option 1 ID : **68019156146**

Option 2 ID : **68019156147**

Option 3 ID : **68019156148**

Option 4 ID : **68019156145**

Status : **Answered**

Chosen Option : **4**

Q.47 The diameter of a sphere is measured using a vernier caliper whose 9 divisions of main scale are equal to 10 divisions of vernier scale. The shortest division on the main scale is equal to 1mm. The main scale reading is 2 cm and second division of vernier scale coincides with a division on main scale. If mass of the sphere is 8.635 g, the density of the sphere is:

- Options
1. 2.5 g/cm^3
 2. 1.7 g/cm^3
 3. 2.2 g/cm^3
 4. 2.0 g/cm^3

Question Type : **MCQ**

Question ID : **68019114382**

Option 1 ID : **68019156155**

Option 2 ID : **68019156154**

Option 3 ID : **68019156156**

Option 4 ID : **68019156153**

Status : **Not Answered**

Chosen Option : --

Q.48 A mixture of one mole of monoatomic gas and one mole of a diatomic gas (rigid) are kept at room temperature (27°C). The ratio of specific heat of gases at constant volume respectively is:

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

Question Type : **MCQ**

Question ID : **68019114372**

Option 1 ID : **68019156116**

Option 2 ID : **68019156115**

Option 3 ID : **68019156113**

Option 4 ID : **68019156114**

Status : **Answered**

Chosen Option : **3**

Q.49 Critical angle of incidence for a pair of optical media is 45° . The refractive indices of first and second media are in the ratio:

- Options 1. $2 : 1$
2. $1 : \sqrt{2}$
3. $\sqrt{2} : 1$
4. $1 : 2$

Question Type : MCQ

Question ID : 68019114376

Option 1 ID : 68019156129

Option 2 ID : 68019156130

Option 3 ID : 68019156131

Option 4 ID : 68019156132

Status : Answered

Chosen Option : 2

Q.50 Binding energy of a certain nucleus is 18×10^8 J. How much is the difference between total mass of all the nucleons and nuclear mass of the given nucleus:

- Options 1. $20 \mu\text{g}$
2. $0.2 \mu\text{g}$
3. $2 \mu\text{g}$
4. $10 \mu\text{g}$

Question Type : MCQ

Question ID : 68019114379

Option 1 ID : 68019156142

Option 2 ID : 68019156144

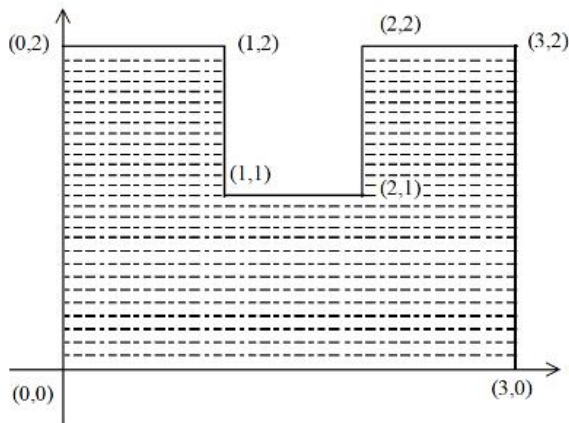
Option 3 ID : 68019156141

Option 4 ID : 68019156143

Status : Answered

Chosen Option : 3

- Q.51** A uniform thin metal plate of mass 10 kg with dimensions is shown. The ratio of x and y coordinates of center of mass of plate in $\frac{n}{9}$. The value of n is _____.



Given --
Answer :

Question Type : SA

Question ID : 68019114385

Status : Not Attempted and Marked For Review

- Q.52** An electric field, $\vec{E} = \frac{2\hat{i} + 6\hat{j} + 8\hat{k}}{\sqrt{6}}$ passes through the surface of 4 m^2 area having unit vector $\hat{n} = \left(\frac{2\hat{i} + \hat{j} + \hat{k}}{\sqrt{6}} \right)$. The electric flux for that surface is _____ V m.

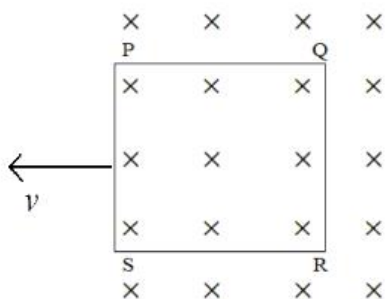
Given --
Answer :

Question Type : SA

Question ID : 68019114388

Status : Not Attempted and Marked For Review

- Q.53** A square loop PQRS having 10 turns, area $3.6 \times 10^{-3} \text{ m}^2$ and resistance 100Ω is slowly and uniformly being pulled out of a uniform magnetic field of magnitude $B=0.5 \text{ T}$ as shown. Work done in pulling the loop out of the field in 1.0 s is _____ $\times 10^{-6} \text{ J}$.



Given --
Answer :

Question Type : SA

Question ID : 68019114393

Status : Not Answered

Q.54 In an alpha particle scattering experiment distance of closest approach for the α particle is 4.5×10^{-14} m. If target nucleus has atomic number 80, then maximum velocity of α - particle is _____ $\times 10^5$ m/s approximately.

$$\left(\frac{1}{4\pi\epsilon_0} = 9 \times 10^9 \text{ SI unit, mass of } \alpha \text{ particle} = 6.72 \times 10^{-27} \text{ kg}\right)$$

Given **0.16**

Answer :

Question Type : **SA**

Question ID : **68019114391**

Status : **Answered**

Q.55 A closed and an open organ pipe have same lengths. If the ratio of frequencies of their seventh overtones is $\left(\frac{a-1}{a}\right)$ then the value of a is _____.

Given --

Answer :

Question Type : **SA**

Question ID : **68019114387**

Status : **Not Answered**

Q.56 A parallel beam of monochromatic light of wavelength 600 nm passes through single slit of 0.4 mm width. Angular divergence corresponding to second order minima would be _____ $\times 10^{-3}$ rad.

Given --

Answer :

Question Type : **SA**

Question ID : **68019114392**

Status : **Not Answered**

Q.57 An electron with kinetic energy 5 eV enters a region of uniform magnetic field of 3 μ T perpendicular to its direction. An electric field E is applied perpendicular to the direction of velocity and magnetic field. The value of E, so that electron moves along the same path, is _____ NC^{-1} .

$$(\text{Given, mass of electron} = 9 \times 10^{-31} \text{ kg, electric charge} = 1.6 \times 10^{-19} \text{ C})$$

Given **900**

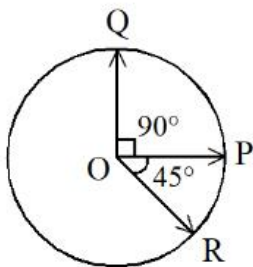
Answer :

Question Type : **SA**

Question ID : **68019114390**

Status : **Answered**

- Q.58** Three vectors \vec{OP} , \vec{OQ} and \vec{OR} each of magnitude A are acting as shown in figure.
The resultant of the three vectors is $A\sqrt{x}$. The value of x is _____.



Given --
Answer :

Question Type : SA

Question ID : 68019114384

Status : Not Attempted and
Marked For Review

- Q.59** Resistance of a wire at 0 °C, 100 °C and t °C is found to be 10 Ω , 10.2 Ω and 10.95 Ω respectively. The temperature t in Kelvin scale is _____.

Given --
Answer :

Question Type : SA

Question ID : 68019114389

Status : Not Attempted and
Marked For Review

- Q.60** A liquid column of height 0.04 cm balances excess pressure of a soap bubble of certain radius. If density of liquid is $8 \times 10^3 \text{ kg m}^{-3}$ and surface tension of soap solution is 0.28 Nm^{-1} , then diameter of the soap bubble is _____ cm.
(if $g = 10 \text{ m s}^{-2}$)

Given --
Answer :

Question Type : SA

Question ID : 68019114386

Status : Not Answered

Q.61 Among the following halogens

F_2 , Cl_2 , Br_2 and I_2

Which can undergo disproportionation reactions?

- Options
1. Cl_2 , Br_2 and I_2
 2. Only I_2
 3. F_2 , Cl_2 and Br_2
 4. F_2 and Cl_2

Question Type : MCQ

Question ID : 68019114398

Option 1 ID : 68019156189

Option 2 ID : 68019156187

Option 3 ID : 68019156190

Option 4 ID : 68019156188

Status : Answered

Chosen Option : 1

Q.62 Match List I with List II

LIST I (Compound)		LIST II (Colour)	
A.	$Fe_4[Fe(CN)_6]_3 \cdot xH_2O$	I.	Violet
B.	$[Fe(CN)_5NOS]^{4-}$	II.	Blood Red
C.	$[Fe(SCN)]^{2+}$	III.	Prussian Blue
D.	$(NH_4)_3PO_4 \cdot 12MoO_3$	IV.	Yellow

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

Question Type : MCQ

Question ID : 68019114406

Option 1 ID : 68019156221

Option 2 ID : 68019156222

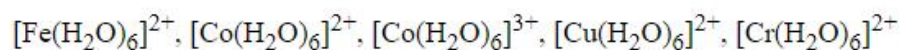
Option 3 ID : 68019156219

Option 4 ID : 68019156220

Status : Answered

Chosen Option : 3

Q.63 Number of Complexes with even number of electrons in t_{2g} orbitals is -



Options 1. 2

2. 5

3. 1

4. 3

Question Type : MCQ

Question ID : 68019114404

Option 1 ID : 68019156211

Option 2 ID : 68019156212

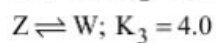
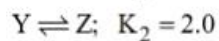
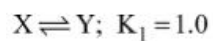
Option 3 ID : 68019156214

Option 4 ID : 68019156213

Status : Not Answered

Chosen Option : --

Q.64 For the given hypothetical reactions, the equilibrium constants are as follows :



The equilibrium constant for the reaction $\text{X} \rightleftharpoons \text{W}$ is

Options 1. 12.0

2. 6.0

3. 8.0

4. 7.0

Question Type : MCQ

Question ID : 68019114396

Option 1 ID : 68019156181

Option 2 ID : 68019156182

Option 3 ID : 68019156180

Option 4 ID : 68019156179

Status : Answered

Chosen Option : 3

- Q.65** Give below are two statements: One is labelled as **Assertion A** and the other is labelled as **Reason R**:
Assertion A: The stability order of +1 oxidation state of Ga, In and Tl is $\text{Ga} < \text{In} < \text{Tl}$.
Reason R: The inert pair effect stabilizes the lower oxidation state down the group.

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

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

Question Type : **MCQ**
Question ID : **68019114399**
Option 1 ID : **68019156194**
Option 2 ID : **68019156191**
Option 3 ID : **68019156193**
Option 4 ID : **68019156192**
Status : **Answered**
Chosen Option : **2**

- Q.66** Given below are two statements:
Statement I: $\text{N}(\text{CH}_3)_3$ and $\text{P}(\text{CH}_3)_3$ can act as ligands to form transition metal complexes.
Statement II: As N and P are from same group, the nature of bonding of $\text{N}(\text{CH}_3)_3$ and $\text{P}(\text{CH}_3)_3$ is always same with transition metals.

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 incorrect.**
2. Statement I is correct but Statement II is incorrect.
3. Both Statement I and Statement II are correct.
4. Statement I is incorrect but Statement II is correct.

Question Type : **MCQ**
Question ID : **68019114400**
Option 1 ID : **68019156196**
Option 2 ID : **68019156197**
Option 3 ID : **68019156195**
Option 4 ID : **68019156198**
Status : **Not Answered**
Chosen Option : **--**

Q.67 An octahedral complex with the formula $\text{CoCl}_3 \cdot n\text{NH}_3$ upon reaction with excess of AgNO_3 solution gives 2 moles of AgCl . Consider the oxidation state of Co in the complex is 'x'. The value of "x + n" is _____.

- Options 1. 6
2. 8
3. 5
4. 3

Question Type : MCQ

Question ID : 68019114403

Option 1 ID : 68019156208

Option 2 ID : 68019156210

Option 3 ID : 68019156209

Option 4 ID : 68019156207

Status : Not Answered

Chosen Option : --

Q.68 Match List I with List II

LIST I (Elements)		LIST II (Properties in their respective groups)	
A.	Cl, S	I.	Elements with highest electronegativity
B.	Ge, As	II.	Elements with largest atomic size
C.	Fr, Ra	III.	Elements which show properties of both metals and non-metal
D.	F, O	IV.	Elements with highest negative electron gain enthalpy

Choose the correct answer from the options given below:

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

Question Type : MCQ

Question ID : 68019114401

Option 1 ID : 68019156201

Option 2 ID : 68019156202

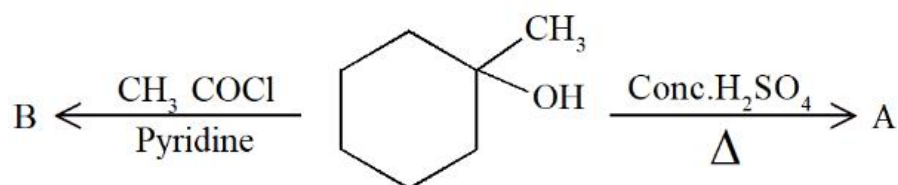
Option 3 ID : 68019156199

Option 4 ID : 68019156200

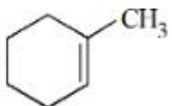
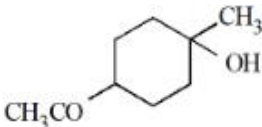
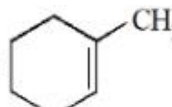
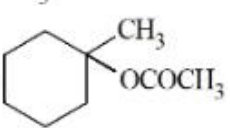
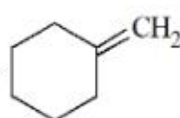
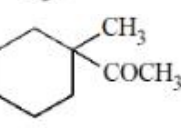
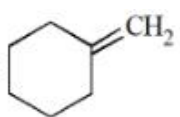
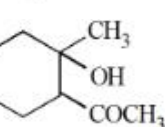
Status : Answered

Chosen Option : 2

Q.69 Identify the major products A and B respectively in the following set of reactions.



Options

1. A =  and B = 
2. A =  and B = 
3. A =  and B = 
4. A =  and B = 

Question Type : MCQ

Question ID : 68019114411

Option 1 ID : 68019156241

Option 2 ID : 68019156240

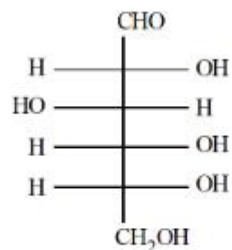
Option 3 ID : 68019156242

Option 4 ID : 68019156239

Status : Answered

Chosen Option : 2

Q.70



The **incorrect** statement regarding the given structure is

- Options
1. despite the presence of $-\text{CHO}$ does not give Schiff's test
 2. can be oxidized to a dicarboxylic acid with Br_2 water
 3. has 4 asymmetric carbon atom
 4. will coexist in equilibrium with 2 other cyclic structure

Question Type : MCQ

Question ID : 68019114413

Option 1 ID : 68019156249

Option 2 ID : 68019156248

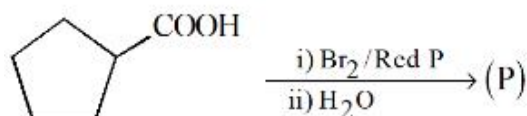
Option 3 ID : 68019156247

Option 4 ID : 68019156250

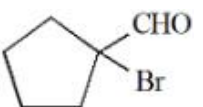
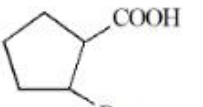
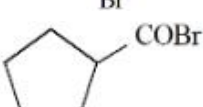
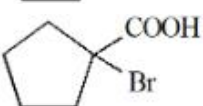
Status : Answered

Chosen Option : 3

Q.71 Identify the product (P) in the following reaction:



Options

1. 
2. 
3. 
4. 

Question Type : MCQ

Question ID : 68019114412

Option 1 ID : 68019156246

Option 2 ID : 68019156245

Option 3 ID : 68019156244

Option 4 ID : 68019156243

Status : Not Attempted and
Marked For Review

Chosen Option : --

Q.72 Iron (III) catalyses the reaction between iodide and persulphate ions, in which

- A. Fe^{3+} oxidises the iodide ion
- B. Fe^{3+} oxidises the persulphate ion
- C. Fe^{2+} reduces the iodide ion
- D. Fe^{2+} reduces the persulphate ion

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

Options 1. A only

2. B only
3. A and D only
4. B and C only

Question Type : MCQ

Question ID : 68019114402

Option 1 ID : 68019156203

Option 2 ID : 68019156204

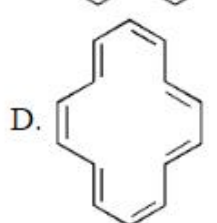
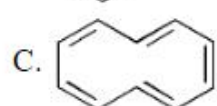
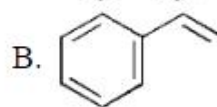
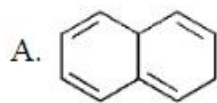
Option 3 ID : 68019156205

Option 4 ID : 68019156206

Status : Answered

Chosen Option : 4

Q.73 Which of the following are aromatic?



Options 1. A and C only

2. A and B only

3. B and D only

4. C and D only

Question Type : MCQ

Question ID : 68019114409

Option 1 ID : 68019156233

Option 2 ID : 68019156231

Option 3 ID : 68019156234

Option 4 ID : 68019156232

Status : Answered

Chosen Option : 3

Q.74 Match List I with List II

LIST I (Molecule)		LIST II (Shape)	
A.	NH_3	I.	Square pyramid
B.	BrF_5	II.	Tetrahedral
C.	PCl_5	III.	Trigonal pyramidal
D.	CH_4	IV.	Trigonal bipyramidal

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

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

Question Type : MCQ

Question ID : 68019114395

Option 1 ID : 68019156178

Option 2 ID : 68019156175

Option 3 ID : 68019156176


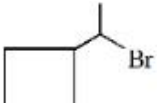
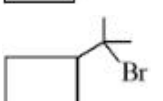
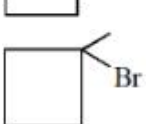
Option 4 ID : 68019156177

Status : Answered

Chosen Option : 4

Q.75 Which among the following compounds will undergo fastest $\text{S}_\text{N}2$ reaction.

Options

1. 
2. 
3. 
4. 

Question Type : MCQ

Question ID : 68019114410

Option 1 ID : 68019156237

Option 2 ID : 68019156238

Option 3 ID : 68019156236

Option 4 ID : 68019156235

Status : Answered

Chosen Option : 1

Q.76 Match List I with List II

LIST I (Name of the test)		LIST II (Reaction sequence involved)[M is metal]	
A.	Borax bead test	I.	$\text{MCO}_3 \rightarrow \text{MO} \xrightarrow[\text{+}\Delta]{\text{Co(NO}_3)_2} \text{CoO} \cdot \text{MO}$
B.	Charcoal cavity test	II.	$\text{MCO}_3 \rightarrow \text{MCl}_2 \rightarrow \text{M}^{2+}$
C.	Cobalt nitrate test	III.	$\text{MSO}_4 \xrightarrow[\Delta]{\text{Na}_2\text{B}_4\text{O}_7} \text{M(BO}_2)_2 \rightarrow \text{MBO}_2 \rightarrow \text{M}$
D.	Flame test	IV.	$\text{MSO}_4 \xrightarrow[\Delta]{\text{Na}_2\text{CO}_3} \text{MCO}_3 \rightarrow \text{MO} \rightarrow \text{M}$

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

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

Question Type : **MCQ**

Question ID : **68019114405**

Option 1 ID : **68019156215**

Option 2 ID : **68019156218**

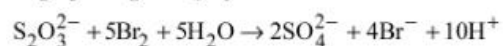
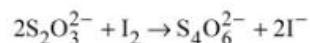
Option 3 ID : **68019156216**

Option 4 ID : **68019156217**

Status : **Answered**

Chosen Option : **2**

Q.77 Thiosulphate reacts differently with iodine and bromine in the reactions given below:



Which of the following statement justifies the above dual behaviour of thiosulphate?

- Options 1. Bromine is a stronger oxidant than iodine
 2. Bromine is a weaker oxidant than iodine
 3. Bromine undergoes oxidation and iodine undergoes reduction in these reactions
 4. Thiosulphate undergoes oxidation by bromine and reduction by iodine in these reactions

Question Type : **MCQ**

Question ID : **68019114397**

Option 1 ID : **68019156183**

Option 2 ID : **68019156184**

Option 3 ID : **68019156186**

Option 4 ID : **68019156185**

Status : **Answered**

Chosen Option : **4**

Q.78 Combustion of glucose ($C_6H_{12}O_6$) produces CO_2 and water. The amount of oxygen (in g) required for the complete combustion of 900 g of glucose is :

[Molar mass of glucose in $g\ mol^{-1} = 180$]

- Options
1. 32
 2. 480
 3. 960
 4. 800

Question Type : **MCQ**

Question ID : **68019114394**

Option 1 ID : **68019156171**

Option 2 ID : **68019156174**

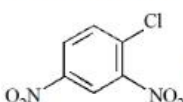
Option 3 ID : **68019156173**

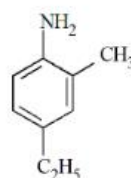
Option 4 ID : **68019156172**

Status : **Answered**

Chosen Option : **3**

Q.79 Given below are two statements:

Statement I:  IUPAC name of Compound A is
Compound A
4-chloro-1,3-dinitrobenzene.

Statement II:  IUPAC name of Compound B is
Compound B
4-ethyl-2-methylaniline.

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

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

Question Type : **MCQ**

Question ID : **68019114407**

Option 1 ID : **68019156225**

Option 2 ID : **68019156226**

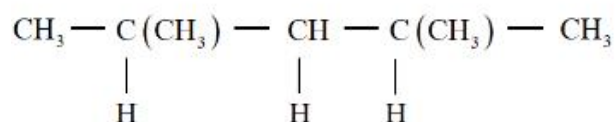
Option 3 ID : **68019156224**

Option 4 ID : **68019156223**

Status : **Answered**

Chosen Option : **1**

Q.80 In the given compound, the number of 2° carbon atom/s is _____.



- Options 1. One
2. Four
3. Two
4. Three

Question Type : MCQ

Question ID : 68019114408

Option 1 ID : 68019156230

Option 2 ID : 68019156227

Option 3 ID : 68019156229

Option 4 ID : 68019156228

Status : Answered

Chosen Option : 1

Section : Chemistry Section B

Q.81 A solution containing 10 g of an electrolyte AB_2 in 100 g of water boils at 100.52°C . The degree of ionization of the electrolyte (α) is _____ $\times 10^{-1}$. (nearest integer)

[Given : Molar mass of $\text{AB}_2 = 200 \text{ g mol}^{-1}$, K_b (molal boiling point elevation const. of water) = $0.52 \text{ K kg mol}^{-1}$, boiling point of water = 100°C ; AB_2 ionises as $\text{AB}_2 \rightarrow \text{A}^{2+} + 2\text{B}^-$]

Given --

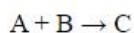
Answer :

Question Type : SA

Question ID : 68019114417

Status : Not Answered

Q.82 Consider the following reaction



The time taken for A to become $1/4^{\text{th}}$ of its initial concentration is twice the time taken to become $1/2$ of the same. Also, when the change of concentration of B is plotted against time, the resulting graph gives a straight line with a negative slope and a positive intercept on the concentration axis.

The overall order of the reaction is _____.

Given 2

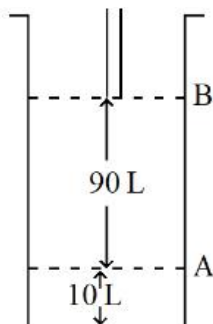
Answer :

Question Type : SA

Question ID : 68019114418

Status : Answered

Q.83



Consider the figure provided.

1 mol of an ideal gas is kept in a cylinder, fitted with a piston, at the position A, at 18°C . If the piston is moved to position B, keeping the temperature unchanged, then 'x' L atm work is done in this reversible process.

x = _____ L atm. (nearest integer)

[Given : Absolute temperature = $^\circ\text{C} + 273.15$, $R = 0.08206\text{ L atm mol}^{-1}\text{ K}^{-1}$]

Given --
Answer :

Question Type : SA

Question ID : 68019114416

Status : Not Answered

Q.84 The 'spin only' magnetic moment value of MO_4^{2-} is _____ BM. (Where M is a metal having least metallic radii. among Sc, Ti, V, Cr, Mn and Zn).

(Given atomic number: Sc = 21, Ti = 22, V = 23, Cr = 24, Mn = 25 and Zn = 30)

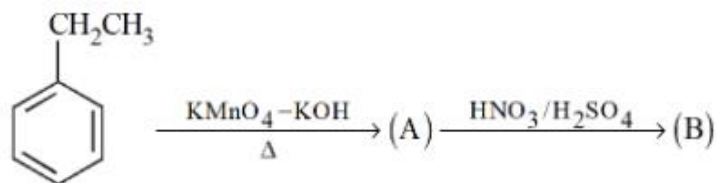
Given 3.4
Answer :

Question Type : SA

Question ID : 68019114419

Status : Answered

Q.85 Major product B of the following reaction has _____ π -bond.



Given --
Answer :

Question Type : SA

Question ID : 68019114422

Status : Not Answered

Q.86 Number of molecules from the following which are exceptions to octet rule is _____.

CO_2 , NO_2 , H_2SO_4 , BF_3 , CH_4 , SiF_4 , ClO_2 , PCl_5 , BeF_2 , C_2H_6 , CHCl_3 , CBr_4

Given --
Answer :

Question Type : SA

Question ID : 68019114415

Status : Not Answered

Q.87 If 279 g of aniline is reacted with one equivalent of benzenediazonium chloride, the maximum amount of aniline yellow formed will be _____ g. (nearest integer)

(consider complete conversion).

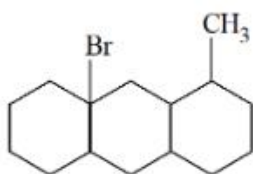
Given --
Answer :

Question Type : SA

Question ID : 68019114420

Status : Not Answered

Q.88 The number of optical isomers in following compound is: _____



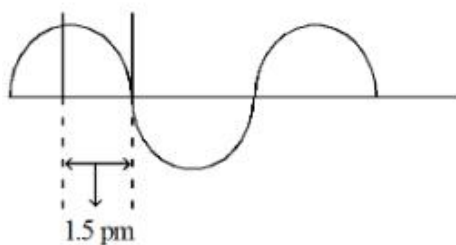
Given --
Answer :

Question Type : SA

Question ID : 68019114421

Status : Not Answered

Q.89 A hypothetical electromagnetic wave is show below.



The frequency of the wave is $x \times 10^{19}$ Hz.

$x =$ _____ (nearest integer)

Given 2

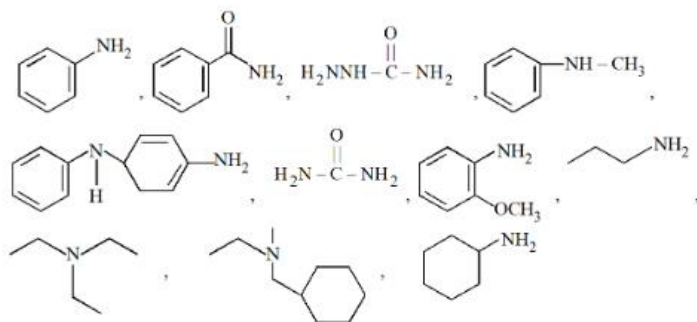
Answer :

Question Type : SA

Question ID : 68019114414

Status : Answered

Q.90 Number of amine compounds from the following giving solids which are soluble in NaOH upon reaction with Hinsberg's reagent is _____.



Given --

Answer :

Question Type : SA

Question ID : 68019114423

Status : Not Answered