

NTA JEE 2024_27 29 30 31 Jan 1st Feb 2024

Test Date	30/01/2024
Test Time	3:00 PM - 6:00 PM
Subject	B. Tech

Section : Mathematics Section A

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

$L_2 : \vec{r} = (\hat{j} - \hat{k}) + \mu(3\hat{i} + \hat{j} + p\hat{k}), \mu \in \mathbb{R}$, and $L_3 : \vec{r} = \delta(\ell\hat{i} + m\hat{j} + n\hat{k}), \delta \in \mathbb{R}$

be three lines such that L_1 is perpendicular to L_2 and L_3 is perpendicular to both L_1 and L_2 . Then, the point which lies on L_3 is

- Options
1. $(-1, -7, 4)$
 2. $(1, -7, 4)$
 3. $(1, 7, -4)$
 4. $(-1, 7, 4)$

Question Type : MCQ

Question ID : 4058591031

Option 1 ID : 4058593298

Option 2 ID : 4058593297

Option 3 ID : 4058593295

Option 4 ID : 4058593296

Status : Answered

Chosen Option : 2

Q.2 Let $A(\alpha, 0)$ and $B(0, \beta)$ be the points on the line $5x + 7y = 50$. Let the point P divide the line segment AB internally in the ratio $7:3$. Let $3x - 25 = 0$ be a directrix of the ellipse $E: \frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ and the corresponding focus be S . If from S , the perpendicular on the x -axis passes through P , then the length of the latus rectum of E is equal to,

- Options
1. $\frac{25}{9}$
 2. $\frac{32}{9}$
 3. $\frac{32}{5}$
 4. $\frac{25}{3}$

Question Type : MCQ

Question ID : 4058591028

Option 1 ID : 4058593284

Option 2 ID : 4058593286

Option 3 ID : 4058593285

Option 4 ID : 4058593283

Status : Answered

Chosen Option : 1

Q.3 Let a and b be two distinct positive real numbers. Let 11^{th} term of a GP, whose first term is a and third term is b , is equal to p^{th} term of another GP, whose first term is a and fifth term is b . Then p is equal to

- Options
1. 25
 2. 20
 3. 21
 4. 24

Question Type : MCQ

Question ID : 4058591020

Option 1 ID : 4058593254

Option 2 ID : 4058593252

Option 3 ID : 4058593251

Option 4 ID : 4058593253

Status : Answered

Chosen Option : 3

Q.4 Suppose $2 - p, p, 2 - a, a$ are the coefficients of four consecutive terms in the expansion of $(1 + x)^n$. Then the value of $p^2 - a^2 + 6a + 2p$ equals

- Options 1. 8
2. 10
3. 4
4. 6

Question Type : MCQ
Question ID : 4058591019
Option 1 ID : 4058593249
Option 2 ID : 4058593250
Option 3 ID : 4058593248
Option 4 ID : 4058593247
Status : Answered
Chosen Option : 3

Q.5 If z is a complex number, then the number of common roots of the equations $z^{1985} + z^{100} + 1 = 0$ and $z^3 + 2z^2 + 2z + 1 = 0$, is equal to

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

Question Type : MCQ
Question ID : 4058591016
Option 1 ID : 4058593238
Option 2 ID : 4058593237
Option 3 ID : 4058593236
Option 4 ID : 4058593235
Status : Answered
Chosen Option : 4

Q.6 Let $f: \mathbb{R} \rightarrow \mathbb{R}$ be a function defined by $f(x) = \frac{x}{(1+x^4)^{1/4}}$, and $g(x) = f(f(f(x)))$.

Then, $18 \int_0^{\sqrt{2\sqrt{5}}} x^2 g(x) dx$ is equal to

- Options 1. 36
2. 39
3. 33
4. 42

Question Type : MCQ
Question ID : 4058591027
Option 1 ID : 4058593281
Option 2 ID : 4058593282
Option 3 ID : 4058593279
Option 4 ID : 4058593280
Status : Answered
Chosen Option : 2

Q.7 Let $y = f(x)$ be a thrice differentiable function in $(-5, 5)$. Let the tangents to the curve $y = f(x)$ at $(1, f(1))$ and $(3, f(3))$ make angles $\pi/6$ and $\pi/4$, respectively with positive x -axis. If $27 \int_1^3 ((f'(t))^2 + 1) f''(t) dt = \alpha + \beta\sqrt{3}$ where α, β are integers, then the value of $\alpha + \beta$ equals

- Options 1. -14
 2. -16
 3. 26
 4. 36

Question Type : MCQ
 Question ID : 4058591026
 Option 1 ID : 4058593277
 Option 2 ID : 4058593278
 Option 3 ID : 4058593275
 Option 4 ID : 4058593276
 Status : Answered
 Chosen Option : 2

Q.8 If the domain of the function $f(x) = \log_e \left(\frac{2x+3}{4x^2+x-3} \right) + \cos^{-1} \left(\frac{2x-1}{x+2} \right)$ is $(\alpha, \beta]$, then the value of $5\beta - 4\alpha$ is equal to

- Options 1. 9
 2. 11
 3. 10
 4. 12

Question Type : MCQ
 Question ID : 4058591015
 Option 1 ID : 4058593231
 Option 2 ID : 4058593233
 Option 3 ID : 4058593232
 Option 4 ID : 4058593234
 Status : Answered
 Chosen Option : 3

Q.9 Let \vec{a} and \vec{b} be two vectors such that $|\vec{b}| = 1$ and $|\vec{b} \times \vec{a}| = 2$. Then $\left| (\vec{b} \times \vec{a}) - \vec{b} \right|^2$ is equal to

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

Question Type : MCQ
 Question ID : 4058591032
 Option 1 ID : 4058593300
 Option 2 ID : 4058593299
 Option 3 ID : 4058593301
 Option 4 ID : 4058593302
 Status : Answered
 Chosen Option : 2

Q.10 Let $\vec{a} = \hat{i} + \alpha \hat{j} + \beta \hat{k}$, $\alpha, \beta \in \mathbb{R}$. Let a vector \vec{b} be such that the angle between \vec{a} and \vec{b} is $\frac{\pi}{4}$ and $|\vec{b}|^2 = 6$. If $\vec{a} \cdot \vec{b} = 3\sqrt{2}$, then the value of $(\alpha^2 + \beta^2) |\vec{a} \times \vec{b}|^2$ is equal to

- Options 1. 75
2. 90
3. 85
4. 95

Question Type : MCQ

Question ID : 4058591033

Option 1 ID : 4058593303

Option 2 ID : 4058593304

Option 3 ID : 4058593305

Option 4 ID : 4058593306

Status : Answered

Chosen Option : 2

Q.11 Let a and b be real constants such that the function f defined by

$$f(x) = \begin{cases} x^2 + 3x + a & , x \leq 1 \\ bx + 2 & , x > 1 \end{cases}$$

be differentiable on \mathbb{R} . Then, the value of $\int_{-2}^2 f(x) dx$ equals

- Options 1. 21
2. 19/6
3. 15/6
4. 17

Question Type : MCQ

Question ID : 4058591022

Option 1 ID : 4058593262

Option 2 ID : 4058593260

Option 3 ID : 4058593259

Option 4 ID : 4058593261

Status : Answered

Chosen Option : 3

Q.12 Let P be a point on the hyperbola $H: \frac{x^2}{9} - \frac{y^2}{4} = 1$, in the first quadrant such that the area of triangle formed by P and the two foci of H is $2\sqrt{13}$. Then, the square of the distance of P from the origin is

- Options 1. 22
2. 20
3. 26
4. 18

Question Type : MCQ

Question ID : 4058591029

Option 1 ID : 4058593289

Option 2 ID : 4058593288

Option 3 ID : 4058593290

Option 4 ID : 4058593287

Status : Answered

Chosen Option : 3

Q.13 For $\alpha, \beta \in (0, \pi/2)$, let $3\sin(\alpha + \beta) = 2\sin(\alpha - \beta)$ and a real number k be such that $\tan \alpha = k \tan \beta$. Then, the value of k is equal to

- Options
1. -5
 2. $-2/3$
 3. $2/3$
 4. 5

Question Type : MCQ

Question ID : 4058591025

Option 1 ID : 4058593273

Option 2 ID : 4058593272

Option 3 ID : 4058593271

Option 4 ID : 4058593274

Status : Answered

Chosen Option : 3

Q.14

Let $R = \begin{pmatrix} x & 0 & 0 \\ 0 & y & 0 \\ 0 & 0 & z \end{pmatrix}$ be a non-zero 3×3 matrix, where

$x \sin \theta = y \sin \left(\theta + \frac{2\pi}{3} \right) = z \sin \left(\theta + \frac{4\pi}{3} \right) \neq 0$, $\theta \in (0, 2\pi)$. For a square matrix M , let $\text{trace}(M)$ denote the sum of all the diagonal entries of M . Then, among the statements:

(I) $\text{Trace}(R) = 0$

(II) If $\text{trace}(\text{adj}(\text{adj}(R))) = 0$, then R has exactly one non-zero entry.

- Options
1. Only (I) is true
 2. Both (I) and (II) are true
 3. Only (II) is true
 4. Neither (I) nor (II) is true

Question Type : MCQ

Question ID : 4058591017

Option 1 ID : 4058593239

Option 2 ID : 4058593241

Option 3 ID : 4058593240

Option 4 ID : 4058593242

Status : Answered

Chosen Option : 4

Q.15 Bag A contains 3 white, 7 red balls and Bag B contains 3 white, 2 red balls. One bag is selected at random and a ball is drawn from it. The probability of drawing the ball from the bag A, if the ball drawn is white, is

- Options 1. $1/9$
2. $1/4$
3. $1/3$
4. $3/10$

Question Type : MCQ

Question ID : 4058591034

Option 1 ID : 4058593309

Option 2 ID : 4058593307

Option 3 ID : 4058593308

Option 4 ID : 4058593310

Status : Answered

Chosen Option : 4

Q.16 Let $f(x) = (x+3)^2(x-2)^3$, $x \in [-4, 4]$. If M and m are the maximum and minimum values of f , respectively in $[-4, 4]$, then the value of $M - m$ is

- Options 1. 608
2. 392
3. 600
4. 108

Question Type : MCQ

Question ID : 4058591023

Option 1 ID : 4058593265

Option 2 ID : 4058593264

Option 3 ID : 4058593263

Option 4 ID : 4058593266

Status : Answered

Chosen Option : 1

Q.17 Let $f: \mathbb{R} - \{0\} \rightarrow \mathbb{R}$ be a function satisfying $f\left(\frac{x}{y}\right) = \frac{f(x)}{f(y)}$ for all $x, y, f(y) \neq 0$. If $f'(1) = 2024$, then

- Options 1. $xf'(x) + f(x) = 2024$
2. $xf'(x) - 2023f(x) = 0$
3. $xf'(x) - 2024f(x) = 0$
4. $xf'(x) + 2024f(x) = 0$

Question Type : MCQ

Question ID : 4058591021

Option 1 ID : 4058593258

Option 2 ID : 4058593257

Option 3 ID : 4058593255

Option 4 ID : 4058593256

Status : Answered

Chosen Option : 3

Q.18 Consider the system of linear equations $x + y + z = 5$,
 $x + 2y + \lambda^2 z = 9$, $x + 3y + \lambda z = \mu$, where $\lambda, \mu \in \mathbb{R}$. Then, which of the following
statement is NOT correct?

- Options
1. System has infinite number of solutions if $\lambda = 1$ and $\mu = 13$
 2. System is consistent if $\lambda \neq 1$ and $\mu = 13$
 3. System has unique solution if $\lambda \neq 1$ and $\mu \neq 13$
 4. System is inconsistent if $\lambda = 1$ and $\mu \neq 13$

Question Type : MCQ

Question ID : 4058591018

Option 1 ID : 4058593246

Option 2 ID : 4058593243

Option 3 ID : 4058593245

Option 4 ID : 4058593244

Status : Answered

Chosen Option : 3

Q.19 If $x^2 - y^2 + 2hxy + 2gx + 2fy + c = 0$ is the locus of a point, which moves such that
it is always equidistant from the lines $x + 2y + 7 = 0$ and $2x - y + 8 = 0$, then the
value of $g + c + h - f$ equals

- Options
1. 6
 2. 29
 3. 14
 4. 8

Question Type : MCQ

Question ID : 4058591030

Option 1 ID : 4058593291

Option 2 ID : 4058593294

Option 3 ID : 4058593293

Option 4 ID : 4058593292

Status : Answered

Chosen Option : 2

Q.20 Let $f : \mathbb{R} \rightarrow \mathbb{R}$ be defined as $f(x) = ae^{2x} + be^x + cx$. If $f(0) = -1$, $f'(\log_e 2) = 21$ and

$\int_0^{\log_e 4} (f(x) - cx) dx = \frac{39}{2}$, then the value of $|a + b + c|$ equals

- Options
1. 12
 2. 16
 3. 8
 4. 10

Question Type : MCQ

Question ID : 4058591024

Option 1 ID : 4058593269

Option 2 ID : 4058593270

Option 3 ID : 4058593267

Option 4 ID : 4058593268

Status : Answered

Chosen Option : 3

Q.21 In an examination of Mathematics paper, there are 20 questions of equal marks and the question paper is divided into three sections : A , B and C . A student is required to attempt total 15 questions taking at least 4 questions from each section. If section A has 8 questions, section B has 6 questions and section C has 6 questions, then the total number of ways a student can select 15 questions is _____.

Given --
Answer :

Question Type : SA
Question ID : 4058591037
Status : Not Answered

Q.22 Consider two circles $C_1 : x^2 + y^2 = 25$ and $C_2 : (x - a)^2 + y^2 = 16$, where $a \in (5, 9)$. Let the angle between the two radii (one to each circle) drawn from one of the intersection points of C_1 and C_2 be $\sin^{-1}\left(\frac{\sqrt{63}}{8}\right)$. If the length of common chord of C_1 and C_2 is β , then the value of $(a\beta)^2$ equals _____.

Given --
Answer :

Question Type : SA
Question ID : 4058591042
Status : Not Answered

Q.23 The area of the region enclosed by the parabola $(y - 2)^2 = x - 1$, the line $x - 2y + 4 = 0$ and the positive coordinate axes is _____.

Given --
Answer :

Question Type : SA
Question ID : 4058591040
Status : Not Answered

Q.24 Let a line passing through the point $(-1, 2, 3)$ intersect the lines $L_1 : \frac{x-1}{3} = \frac{y-2}{2} = \frac{z-4}{-2}$ at $M(\alpha, \beta, \gamma)$ and $L_2 : \frac{x+2}{-3} = \frac{y-2}{-2} = \frac{z-1}{4}$ at $N(a, b, c)$. Then, the value of $\frac{(\alpha + \beta + \gamma)^2}{(a + b + c)^2}$ equals _____.

Given --
Answer :

Question Type : SA
Question ID : 4058591043
Status : Not Answered

Q.25 The number of symmetric relations defined on the set $\{1, 2, 3, 4\}$ which are not reflexive is _____.

Given --
Answer :

Question Type : SA
Question ID : 4058591035
Status : Not Answered

Q.26 Let $Y = Y(X)$ be a curve lying in the first quadrant such that the area enclosed by the line $Y - y = Y'(x)(X - x)$ and the co-ordinate axes, where (x, y) is any point on the curve, is always $\frac{-y^2}{2Y'(x)} + 1$, $Y'(x) \neq 0$. If $Y(1) = 1$, then $12Y(2)$ equals _____.

Given --
Answer :

Question Type : SA
Question ID : 4058591041
Status : Not Answered

Q.27 Let $\alpha = \sum_{k=0}^n \left(\frac{{}^n C_k}{k+1} \right)^2$ and $\beta = \sum_{k=0}^{n-1} \left(\frac{{}^n C_k {}^n C_{k+1}}{k+2} \right)$. If $5\alpha = 6\beta$, then n equals _____.

Given --
Answer :

Question Type : SA
Question ID : 4058591038
Status : Not Answered

Q.28 Let S_n be the sum to n -terms of an arithmetic progression 3, 7, 11,
If $40 < \left(\frac{6}{n(n+1)} \sum_{k=1}^n S_k \right) < 42$, then n equals _____.

Given --
Answer :

Question Type : SA
Question ID : 4058591039
Status : Not Answered

Q.29 The variance σ^2 of the data

x_i	0	1	5	6	10	12	17
f_i	3	2	3	2	6	3	3

is _____.

Given --
Answer :

Question Type : SA
Question ID : 4058591044
Status : Not Answered

Q.30 The number of real solutions of the equation $x(x^2 + 3|x| + 5|x-1| + 6|x-2|) = 0$ is

_____.

Given --
Answer :

Question Type : SA
Question ID : 4058591036
Status : Not Answered

Section : Physics Section A

Q.31 If the total energy transferred to a surface in time t is $6.48 \times 10^5 J$, then the magnitude of the total momentum delivered to this surface for complete absorption will be:

- Options
1. $2.16 \times 10^{-3} \text{ kg m/s}$
 2. $2.46 \times 10^{-3} \text{ kg m/s}$
 3. $1.58 \times 10^{-3} \text{ kg m/s}$
 4. $4.32 \times 10^{-3} \text{ kg m/s}$

Question Type : MCQ
Question ID : 4058591058
Option 1 ID : 4058593373
Option 2 ID : 4058593376
Option 3 ID : 4058593375
Option 4 ID : 4058593374
Status : Answered
Chosen Option : 2

Q.32 If 50 Vernier divisions are equal to 49 main scale divisions of a traveling microscope and one smallest reading of main scale is 0.5 mm , the Vernier constant of traveling microscope is

- Options
1. 0.01 cm
 2. 0.1 cm
 3. 0.1 mm
 4. 0.01 mm

Question Type : MCQ
Question ID : 4058591064
Option 1 ID : 4058593398
Option 2 ID : 4058593400
Option 3 ID : 4058593397
Option 4 ID : 4058593399
Status : Answered
Chosen Option : 2

Q.33 A beam of unpolarised light of intensity I_0 is passed through a polaroid A and then through another polaroid B which is oriented so that its principal plane makes an angle of 45° relative to that of A . The intensity of emergent light is:

- Options
1. $I_0/2$
 2. $I_0/4$
 3. $I_0/8$
 4. I_0

Question Type : MCQ

Question ID : 4058591059

Option 1 ID : 4058593378

Option 2 ID : 4058593379

Option 3 ID : 4058593380

Option 4 ID : 4058593377

Status : Answered

Chosen Option : 2

Q.34 A block of mass m is placed on a surface having vertical cross-section given by $y = x^2 / 4$. If coefficient of friction is 0.5, the maximum height above the ground at which block can be placed without slipping is:

- Options
1. $1/4 m$
 2. $1/3 m$
 3. $1/6 m$
 4. $1/2 m$

Question Type : MCQ

Question ID : 4058591048

Option 1 ID : 4058593333

Option 2 ID : 4058593336

Option 3 ID : 4058593334

Option 4 ID : 4058593335

Status : Answered

Chosen Option : 3

Q.35 A particle of charge $-q$ and mass m moves in a circle of radius r around an infinitely long line charge of linear charge density $+\lambda$. Then time period will be given as :

(Consider k as Coulomb's constant)

Options

1. $T = \frac{1}{2\pi} \sqrt{\frac{2k\lambda q}{m}}$

2. $T^2 = \frac{4\pi^2 m r^3}{2k\lambda q}$

3. $T = 2\pi r \sqrt{\frac{m}{2k\lambda q}}$

4. $T = \frac{1}{2\pi r} \sqrt{\frac{m}{2k\lambda q}}$

Question Type : MCQ

Question ID : 4058591054

Option 1 ID : 4058593359

Option 2 ID : 4058593358

Option 3 ID : 4058593357

Option 4 ID : 4058593360

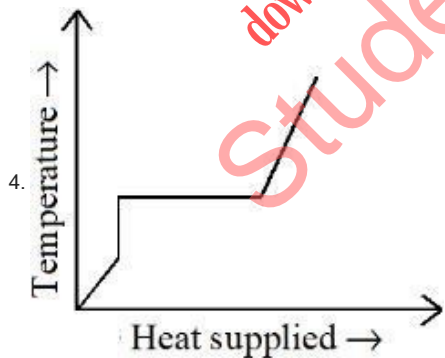
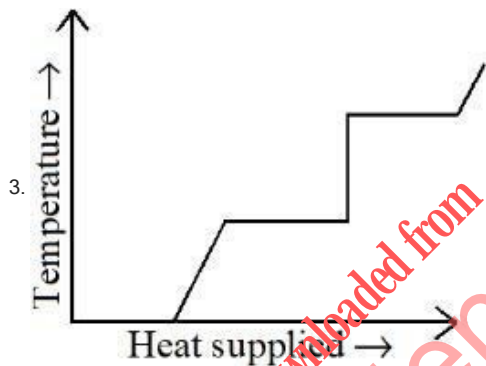
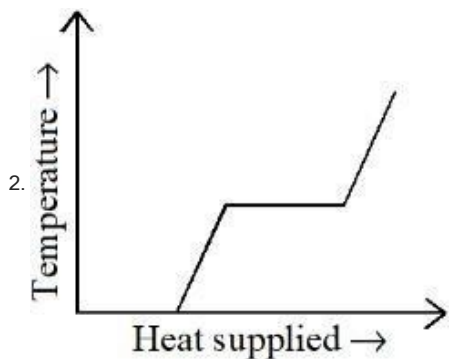
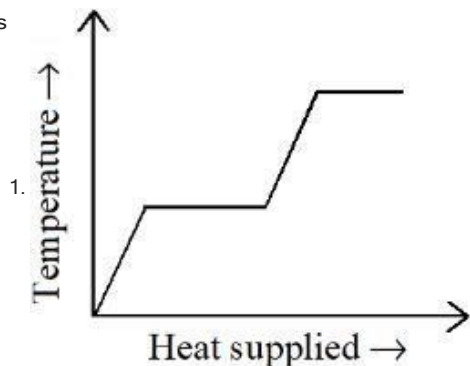
Status : Answered

Chosen Option : 1

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Q.36 A block of ice at -10°C is slowly heated and converted to steam at 100°C . Which of the following curves represent the phenomenon qualitatively:

Options



Question Type : MCQ

Question ID : 4058591051

Option 1 ID : 4058593345

Option 2 ID : 4058593346

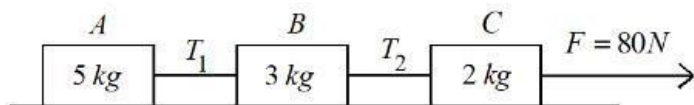
Option 3 ID : 4058593348

Option 4 ID : 4058593347

Status : Answered

Chosen Option : 2

Q.37 Three blocks A , B and C are pulled on a horizontal smooth surface by a force of 80N as shown in figure



The tensions T_1 and T_2 in the string are respectively:

- Options
1. 60N , 80N
 2. 88N , 96N
 3. 80N , 100N
 4. 40N , 64N

Question Type : MCQ

Question ID : 4058591047

Option 1 ID : 4058593330

Option 2 ID : 4058593331

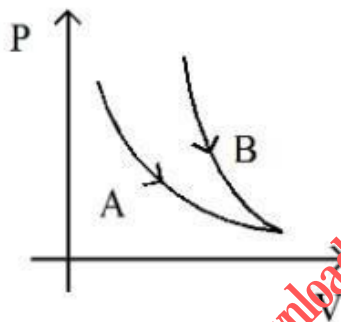
Option 3 ID : 4058593332

Option 4 ID : 4058593329

Status : Answered

Chosen Option : 3

Q.38 Choose the correct statement for processes A & B shown in figure.



- Options
1. $PV = k$ for process B and A .
 2. $PV' = k$ for process B and $PV = k$ for process A .
 3. $\frac{T^\gamma}{P^{\gamma-1}} = k$ for process A and $PV = k$ for process B .
 4. $\frac{P^{\gamma-1}}{T^\gamma} = k$ for process B and $T = k$ for process A .

Question Type : MCQ

Question ID : 4058591052

Option 1 ID : 4058593349

Option 2 ID : 4058593350

Option 3 ID : 4058593352

Option 4 ID : 4058593351

Status : Answered

Chosen Option : 2

Q.39 Projectiles A and B are thrown at angles of 45° and 60° with vertical respectively from top of a 400 m high tower. If their ranges and times of flight are same, the ratio of their speeds of projection $v_A : v_B$ is :

[Take $g = 10 \text{ ms}^{-2}$]

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

Question Type : MCQ

Question ID : 4058591046

Option 1 ID : 4058593326

Option 2 ID : 4058593325

Option 3 ID : 4058593327

Option 4 ID : 4058593328

Status : Answered

Chosen Option : 2

Q.40 When a potential difference V is applied across a wire of resistance R , it dissipates energy at a rate W . If the wire is cut into two halves and these halves are connected mutually parallel across the same supply, the energy dissipation rate will become:

- Options
1. $2W$
 2. $1/2W$
 3. $1/4W$
 4. $4W$

Question Type : MCQ

Question ID : 4058591055

Option 1 ID : 4058593361

Option 2 ID : 4058593362

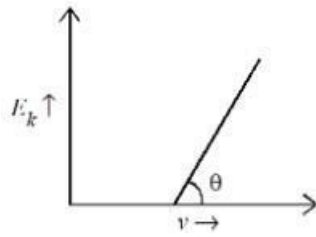
Option 3 ID : 4058593364

Option 4 ID : 4058593363

Status : Answered

Chosen Option : 2

Q.41 For the photoelectric effect, the maximum kinetic energy (E_k) of the photoelectrons is plotted against the frequency (ν) of the incident photons as shown in figure. The slope of the graph gives



- Options
1. Charge of electron
 2. Planck's constant
 3. Ratio of Planck's constant to electric charge
 4. Work function of the metal

Question Type : MCQ

Question ID : 4058591060

Option 1 ID : 4058593382

Option 2 ID : 4058593381

Option 3 ID : 4058593384

Option 4 ID : 4058593383

Status : Answered

Chosen Option : 2

Q.42 An alternating voltage $V(t) = 220 \sin 100 \pi t$ volt is applied to a purely resistive load of 50Ω . The time taken for the current to rise from half of the peak value to the peak value is:

- Options
1. 3.3 ms
 2. 5 ms
 3. 7.2 ms
 4. 2.2 ms

Question Type : MCQ

Question ID : 4058591057

Option 1 ID : 4058593369

Option 2 ID : 4058593372

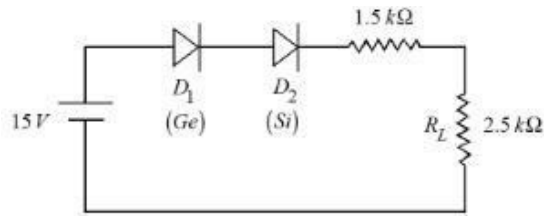
Option 3 ID : 4058593371

Option 4 ID : 4058593370

Status : Answered

Chosen Option : 2

Q.43



In the given circuit, the voltage across load resistance (R_L) is:

- Options
1. 9.00 V
 2. 14.00 V
 3. 8.75 V
 4. 8.50 V

Question Type : MCQ

Question ID : 4058591063

Option 1 ID : 4058593395

Option 2 ID : 4058593396

Option 3 ID : 4058593394

Option 4 ID : 4058593393

Status : Answered

Chosen Option : 2

Q.44 In a nuclear fission reaction of an isotope of mass M , three similar daughter nuclei of same mass are formed. The speed of a daughter nuclei in terms of mass defect ΔM will be :

- Options
1. $\sqrt{\frac{2c\Delta M}{M}}$
 2. $c\sqrt{\frac{3\Delta M}{M}}$
 3. $c\sqrt{\frac{2\Delta M}{M}}$
 4. $\frac{\Delta Mc^2}{3}$

Question Type : MCQ

Question ID : 4058591061

Option 1 ID : 4058593388

Option 2 ID : 4058593387

Option 3 ID : 4058593386

Option 4 ID : 4058593385

Status : Answered

Chosen Option : 2

Q.45 Match List I with List II

List I		List II	
A.	Gauss's law of magnetostatics	I.	$\oint \vec{E} \cdot \vec{d}a = \frac{1}{\epsilon_0} \int \rho dV$
B.	Faraday's law of electro magnetic induction	II.	$\oint \vec{B} \cdot \vec{d}a = 0$
C.	Ampere's law	III.	$\int \vec{E} \cdot \vec{d}l = \frac{-d}{dt} \int \vec{B} \cdot \vec{d}a$
D.	Gauss's law of electrostatics	IV.	$\oint \vec{B} \cdot \vec{d}l = \mu_0 I$

Choose the correct answer from the options given below:

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

Question Type : MCQ

Question ID : 4058591056

Option 1 ID : 4058593365

Option 2 ID : 4058593368

Option 3 ID : 4058593366

Option 4 ID : 4058593367

Status : Answered

Chosen Option : 3

Q.46 Escape velocity of a body from earth is 11.2 km/s . If the radius of a planet be one-third the radius of earth and mass be one-sixth that of earth, the escape velocity from the planet is :

- Options
1. 11.2 km/s
 2. 7.9 km/s
 3. 4.2 km/s
 4. 8.4 km/s

Question Type : MCQ

Question ID : 4058591050

Option 1 ID : 4058593344

Option 2 ID : 4058593342

Option 3 ID : 4058593341

Option 4 ID : 4058593343

Status : Answered

Chosen Option : 2

Q.47 If three moles of monoatomic gas ($\gamma = \frac{5}{3}$) is mixed with two moles of a diatomic gas ($\gamma = \frac{7}{5}$), the value of adiabatic exponent γ for the mixture is

- Options
1. 1.52
 2. 1.35
 3. 1.75
 4. 1.40

Question Type : MCQ
Question ID : 4058591053
Option 1 ID : 4058593354
Option 2 ID : 4058593356
Option 3 ID : 4058593355
Option 4 ID : 4058593353
Status : Answered
Chosen Option : 2

Q.48 An electron revolving in n^{th} Bohr orbit has magnetic moment μ_n . If $\mu_n \propto n^x$, the value of x is

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

Question Type : MCQ
Question ID : 4058591062
Option 1 ID : 4058593389
Option 2 ID : 4058593390
Option 3 ID : 4058593391
Option 4 ID : 4058593392
Status : Answered
Chosen Option : 1

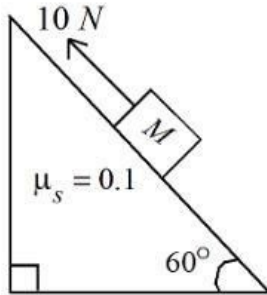
Q.49 If mass is written as $m = k c^P G^{-1/2} h^{1/2}$ then the value of P will be : (Constants have their usual meaning with k a dimensionless constant)

- Options
1. $1/3$
 2. $-1/3$
 3. 2
 4. $1/2$

Question Type : MCQ
Question ID : 4058591045
Option 1 ID : 4058593321
Option 2 ID : 4058593323
Option 3 ID : 4058593322
Option 4 ID : 4058593324
Status : Answered
Chosen Option : 2

Q.50 A block of mass 1 kg is pushed up a surface inclined to horizontal at an angle of 60° by a force of 10 N parallel to the inclined surface as shown in figure. When the block is pushed up by 10 m along inclined surface, the work done against frictional force is :

$[g = 10 \text{ m/s}^2]$



- Options 1. 5 J
 2. $5 \times 10^3 \text{ J}$
 3. $5\sqrt{3} \text{ J}$
 4. 10 J

Question Type : MCQ
 Question ID : 4058591049
 Option 1 ID : 4058593338
 Option 2 ID : 4058593339
 Option 3 ID : 4058593337
 Option 4 ID : 4058593340
 Status : Answered
 Chosen Option : 3

Section : Physics Section B

Q.51 Two discs of moment of inertia $I_1 = 4 \text{ kg m}^2$ and $I_2 = 2 \text{ kg m}^2$, about their central axes & normal to their planes, rotating with angular speeds 10 rad/s & 4 rad/s respectively are brought into contact face to face with their axes of rotation coincident. The loss of kinetic energy of the system in the process is _____ J.

Given --
 Answer :

Question Type : SA
 Question ID : 4058591066
 Status : Not Answered

Q.52 দুটি অভিন্ন আহিত গোলককে দুটি অভিন্ন সমদৈর্ঘ্যের তারের দ্বারা বায়ুতে ঝোলালে তারদ্বয়ের মধ্যবর্তী কোণের মান হয় 37° । গোলকদ্বয়কে 0.7 g/cm^3 ঘনত্বের একটি তরলে নিমজ্জিত করলে তারদ্বয়ে সন্নিহিত কোণের কোন পরিবর্তন হয় না। যদি গোলকদ্বয়ের উপাদানের ঘনত্ব 1.4 g/cm^3 হয় তবে তরলের পরাবৈদ্যুতিক ধ্রুবকের মান : _____ $\left(\tan 37^\circ = \frac{3}{4} \right)$

Given --
 Answer :

Question Type : SA
 Question ID : 4058591069
 Status : Not Answered

Q.53 100 Ω এবং 200 Ω রোধদ্বয়কে একটি 4 V এবং সামান্য আভ্যন্তরীণ রোধের ব্যটারির সাথে শ্রেণী সমবায়ে যুক্ত করা হল। এবার একটি ভোল্টমিটারকে ঐ 100 Ω রোধের দুই প্রান্তে যুক্ত করলে বিভব প্রভেদ দেখায় 1 V। ঐ ভোল্টমিটারের রোধের মান _____ Ω .

Given --
Answer :

Question Type : SA
Question ID : 4058591070
Status : Not Answered

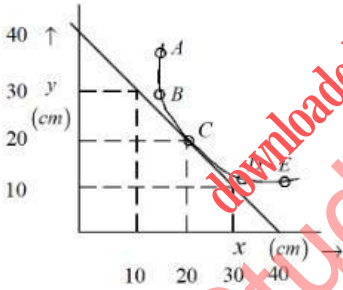
Q.54 একটি ক্ষমতা বন্টনকারী বিদ্যুৎ তার একটি অবরোধী পরিবর্তকে 2.3 kV ক্ষমতা বিনিয়োগ করে। এটির প্রাথমিক পাক সংখ্যা 3000 এবং একটি 230V বিভবের ক্ষমতা নির্গত করে। যদি প্রাথমিক পাকে 5A প্রবাহ বাহিত হয় এবং এটির দক্ষতা 90%। যদি পাকে ব্যবহৃত তার তামার হয় তবে ঐ পরিবর্তকের দ্বিতীয়কে প্রাপ্ত প্রবাহের মান হবে _____ A।

Given --
Answer :

Question Type : SA
Question ID : 4058591072
Status : Not Answered

Q.55 একটি উত্তল লেন্সের ফোকাস দূরত্ব (f) মাপার প্রক্রিয়ায় ফোকাসের সাপেক্ষে বস্তু দূরত্ব (x) এবং প্রতিবিম্ব দূরত্ব (y) একটি লেখচিত্রে দেখানো আছে।

চিত্রানুসারে ফোকাস দূরত্বের মান _____ cm.



Given --
Answer :

Question Type : SA
Question ID : 4058591073
Status : Not Answered

Q.56 ভূপৃষ্ঠ থেকে কেন্দ্রের দূরত্বের সমান উচ্চতায় একটি সরল দোলক স্থাপিত করা হল। যদি দোলকটির দৈর্ঘ্য 4m হয় তবে দোলকটির ক্ষুদ্র আন্দোলনে তার পর্যায়কালের মান _____ s. [ধর্তব্য $g = \pi^2 \text{ms}^{-2}$]

Given --
Answer :

Question Type : SA
Question ID : 4058591074
Status : Not Answered

Q.57 $1m$ বাহুবিশিষ্ট একটি বর্গাকৃতি লুপে বায়ুতে বুলন্ত অবস্থায় $5A$ বিদ্যুৎ প্রবাহ পাঠানো হল। যদি এমতাবস্থায় লুপের কেন্দ্রে চৌম্বকক্ষেত্রের মান $X\sqrt{2} \times 10^{-7} T$ হয় তবে X এর মান _____।

Given --
Answer :

Question Type : SA
Question ID : 4058591071
Status : Not Answered

Q.58 একটি ভেক্টরের মান $\vec{A} = 3\hat{i} + 4\hat{j}$ ভেক্টরের মানের সমান এবং এর দিক $\vec{B} = 4\hat{i} + 3\hat{j}$ ভেক্টরের দিকের সমান্তরাল। এই ভেক্টরের প্রথম পাদে x এবং y এর মান x এবং 3 হলে x এর মান = _____।

Given --
Answer :

Question Type : SA
Question ID : 4058591065
Status : Not Answered

Q.59 1000 টি ক্ষুদ্র জলবিন্দু সম্মিলিত হয়ে একটি বড় জলের ফোঁটা তৈরী করা হল। যদি 1000 টি জলবিন্দুর মোট পৃষ্ঠশক্তি E_1 এবং প্রস্তুত করা মোট জলের ফোঁটার মোট পৃষ্ঠশক্তি E_2 হয় তবে $E_1 : E_2 = x : 1$ যেখানে $x =$ _____।

Given --
Answer :

Question Type : SA
Question ID : 4058591067
Status : Not Answered

Q.60 মূল বিন্দুতে অবস্থিত এবং শব্দ উৎসের তীব্রতা $16 \times 10^{-8} Wm^{-2}$ । এই উৎসের জন্য মূলবিন্দু থেকে $2m$ এবং $4m$ দূরে অবস্থিত দুটি বিন্দুতে শব্দের তীব্রতার পার্থক্যের (শুধুমাত্র মান হলেই হবে) মান _____ $\times 10^{-8} Wm^{-2}$ ।

Given --
Answer :

Question Type : SA
Question ID : 4058591068
Status : Not Answered

Section : Chemistry Section A

Q.61 The molecule / ion with square pyramidal shape is

Options 1. PF_5

2. $[\text{Ni}(\text{CN})_4]^{2-}$

3. PCl_5

4. BrF_5

Question Type : MCQ

Question ID : 4058591077

Option 1 ID : 4058593419

Option 2 ID : 4058593422

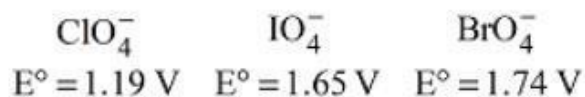
Option 3 ID : 4058593421

Option 4 ID : 4058593420

Status : Answered

Chosen Option : 3

Q.62 Reduction potential of ions are given below:



The correct order of their oxidising power is :

Options 1. $\text{IO}_4^- > \text{BrO}_4^- > \text{ClO}_4^-$

2. $\text{BrO}_4^- > \text{IO}_4^- > \text{ClO}_4^-$

3. $\text{ClO}_4^- > \text{IO}_4^- > \text{BrO}_4^-$

4. $\text{BrO}_4^- > \text{ClO}_4^- > \text{IO}_4^-$

Question Type : MCQ

Question ID : 4058591079

Option 1 ID : 4058593428

Option 2 ID : 4058593429

Option 3 ID : 4058593427

Option 4 ID : 4058593430

Status : Answered

Chosen Option : 3

Q.63 Which among the following purification methods is based on the principle of "Solubility" in two different solvents?

Options 1. Differential Extraction

2. Sublimation

3. Column Chromatography

4. Distillation

Question Type : MCQ

Question ID : 4058591086

Option 1 ID : 4058593457

Option 2 ID : 4058593455

Option 3 ID : 4058593458

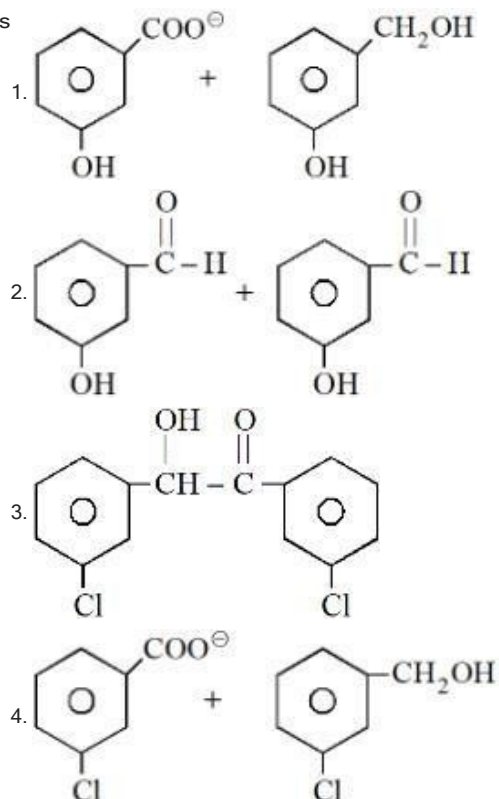
Option 4 ID : 4058593456

Status : Answered

Chosen Option : 2

Q.64 m-chlorobenzaldehyde on treatment with 50% KOH solution yields

Options



Question Type : MCQ

Question ID : 4058591092

Option 1 ID : 4058593482

Option 2 ID : 4058593480

Option 3 ID : 4058593479

Option 4 ID : 4058593481

Status : Answered

Chosen Option : 2

Q.65 Alkaline oxidative fusion of MnO_2 gives "A" which on electrolytic oxidation in alkaline solution produces B. A and B respectively are

Options

1. MnO_4^{2-} and MnO_4^-
2. Mn_2O_7 and MnO_4^-
3. MnO_4^{2-} and Mn_2O_7
4. Mn_2O_3 and MnO_4^{2-}

Question Type : MCQ

Question ID : 4058591083

Option 1 ID : 4058593445

Option 2 ID : 4058593446

Option 3 ID : 4058593444

Option 4 ID : 4058593443

Status : Answered

Chosen Option : 1

Q.66 Given below are two statements:

Statement - I: Along the period, the chemical reactivity of the elements gradually increases from group 1 to group 18.

Statement - II: The nature of oxides formed by group 1 elements is basic while that of group 17 elements is acidic.

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

- Options
1. Both Statement I and Statement II are True
 2. Statement I is False but statement I is true
 3. Statement I is True But Statement II is False
 4. Both Statement I and Statement II are False

Question Type : MCQ

Question ID : 4058591080

Option 1 ID : 4058593431

Option 2 ID : 4058593434

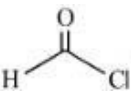
Option 3 ID : 4058593433

Option 4 ID : 4058593432

Status : Answered

Chosen Option : 2

Q.67 Salicylaldehyde is synthesized from phenol, when reacted with

- Options
1. $\text{CCl}_4, \text{NaOH}$
 2. CO_2, NaOH
 3. $\text{HCCl}_3, \text{NaOH}$
 4.  , NaOH

Question Type : MCQ

Question ID : 4058591090

Option 1 ID : 4058593474

Option 2 ID : 4058593471

Option 3 ID : 4058593473

Option 4 ID : 4058593472

Status : Answered

Chosen Option : 3

Q.68 Given below are two statements: One is labelled as **Assertion A** and the other is labelled as **Reason R**:

Assertion A: H_2Te is more acidic than H_2S .

Reason R: Bond dissociation enthalpy of H_2Te is lower than H_2S .

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

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

Question Type : MCQ

Question ID : 4058591082

Option 1 ID : 4058593442

Option 2 ID : 4058593440

Option 3 ID : 4058593441

Option 4 ID : 4058593439

Status : Answered

Chosen Option : 2

Q.69 Given below are two statements:

Statement - I: High concentration of strong nucleophilic reagent with secondary alkyl halides which do not have bulky substituents will follow S_{N}^2 mechanism.

Statement - II: A secondary alkyl halide when treated with a large excess of ethanol follows S_{N}^1 mechanism.

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

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

Question Type : MCQ

Question ID : 4058591089

Option 1 ID : 4058593467

Option 2 ID : 4058593469

Option 3 ID : 4058593470

Option 4 ID : 4058593468

Status : Answered

Chosen Option : 2

Q.70 If a substance 'A' dissolves in solution of a mixture of 'B' and 'C' with their respective number of moles as n_A , n_B and n_C . Mole fraction of C in the solution is

- Options
1. $\frac{n_C}{n_A + n_B + n_C}$
 2. $\frac{n_C}{n_A - n_B - n_C}$
 3. $\frac{n_C}{n_A \times n_B \times n_C}$
 4. $\frac{n_B}{n_A + n_B}$

Question Type : MCQ

Question ID : 4058591075

Option 1 ID : 4058593413

Option 2 ID : 4058593414

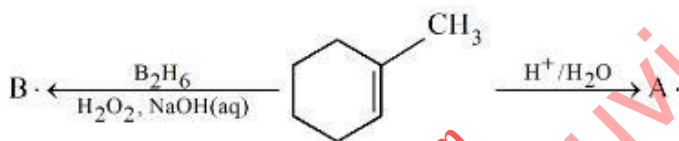
Option 3 ID : 4058593412

Option 4 ID : 4058593411

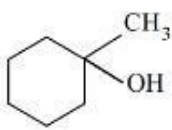
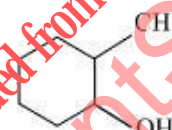
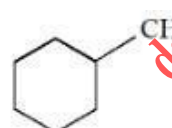
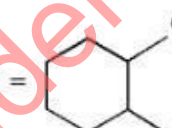
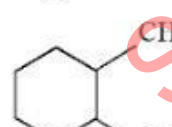
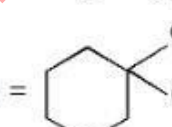
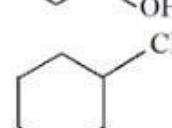
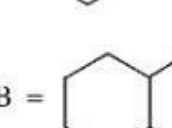
Status : Answered

Chosen Option : 3

Q.71 Products A and B formed in the following set of reactions are



Options

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

Question Type : MCQ

Question ID : 4058591091

Option 1 ID : 4058593475

Option 2 ID : 4058593476

Option 3 ID : 4058593477

Option 4 ID : 4058593478

Status : Answered

Chosen Option : 2

Q.72 Given below are two statements:

Statement - I: Since Fluorine is more electronegative than nitrogen, the net dipole moment of NF_3 is greater than NH_3 .

Statement - II: In NH_3 , the orbital dipole due to lone pair and the dipole moment of NH bonds are in opposite direction, but in NF_3 the orbital dipole due to lone pair and dipole moments of N-F bonds are in same direction.

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

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

Question Type : MCQ

Question ID : 4058591076

Option 1 ID : 4058593416

Option 2 ID : 4058593415

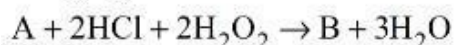
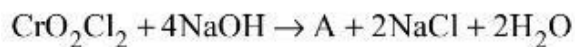
Option 3 ID : 4058593418

Option 4 ID : 4058593417

Status : Answered

Chosen Option : 2

Q.73 A and B formed in the following reactions are:



- Options
1. $\text{A} = \text{Na}_2\text{Cr}_2\text{O}_7$, $\text{B} = \text{CrO}_5$
 2. $\text{A} = \text{Na}_2\text{CrO}_4$, $\text{B} = \text{CrO}_5$
 3. $\text{A} = \text{Na}_2\text{Cr}_2\text{O}_7$, $\text{B} = \text{CrO}_3$
 4. $\text{A} = \text{Na}_2\text{Cr}_2\text{O}_4$, $\text{B} = \text{CrO}_5$

Question Type : MCQ

Question ID : 4058591094

Option 1 ID : 4058593489

Option 2 ID : 4058593490

Option 3 ID : 4058593487

Option 4 ID : 4058593488

Status : Answered

Chosen Option : 2

Q.74 The coordination geometry around the manganese in decacarbonyldimanganese (0) is

- Options
1. Square pyramidal
 2. Square planar
 3. Octahedral
 4. Trigonal bipyramidal

Question Type : MCQ

Question ID : 4058591085

Option 1 ID : 4058593452

Option 2 ID : 4058593454

Option 3 ID : 4058593451

Option 4 ID : 4058593453

Status : Answered

Chosen Option : 3

Q.75 The orange colour of $K_2Cr_2O_7$ and purple colour of $KMnO_4$ is due to

- Options
1. $d \rightarrow d$ transitions in $KMnO_4$ and charge transfer transitions in $K_2Cr_2O_7$.
 2. $d \rightarrow d$ transitions in $K_2Cr_2O_7$ and charge transfer transitions in $KMnO_4$.
 3. Charge transfer transition in both.
 4. $d \rightarrow d$ transitions in both

Question Type : MCQ

Question ID : 4058591084

Option 1 ID : 4058593449

Option 2 ID : 4058593448

Option 3 ID : 4058593450

Option 4 ID : 4058593447

Status : Answered

Chosen Option : 2

Q.76 Choose the correct statements about the hydrides of group 15 elements.

- A. The stability of the hydrides decreases in the order $\text{NH}_3 > \text{PH}_3 > \text{AsH}_3 > \text{SbH}_3 > \text{BiH}_3$.
- B. The reducing ability of the hydride increases in the order $\text{NH}_3 < \text{PH}_3 < \text{AsH}_3 < \text{SbH}_3 < \text{BiH}_3$.
- C. Among the hydrides, NH_3 is strong reducing agent while BiH_3 is mild reducing agent.
- D. The basicity of the hydrides increases in the order $\text{NH}_3 < \text{PH}_3 < \text{AsH}_3 < \text{SbH}_3 < \text{BiH}_3$.

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

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

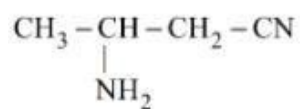
Question Type : MCQ
Question ID : 4058591081
Option 1 ID : 4058593438
Option 2 ID : 4058593435
Option 3 ID : 4058593436
Option 4 ID : 4058593437
Status : Answered
Chosen Option : 3

Q.77 The solution from the following with highest depression in freezing point/lowest freezing point is

- Options
- 1. 180 g of glucose dissolved in water
 - 2. 180 g of benzoic acid dissolved in benzene
 - 3. 180 g of acetic acid dissolved in benzene
 - 4. 180 g of acetic acid dissolved in water

Question Type : MCQ
Question ID : 4058591078
Option 1 ID : 4058593424
Option 2 ID : 4058593425
Option 3 ID : 4058593426
Option 4 ID : 4058593423
Status : Answered
Chosen Option : 2

Q.78 IUPAC name of following compound is :



- Options
1. 2-Aminopentanenitrile
 2. 2-Aminobutanenitrile
 3. 3-Aminobutanenitrile
 4. 3-Aminopropanenitrile

Question Type : MCQ

Question ID : 4058591088

Option 1 ID : 4058593466

Option 2 ID : 4058593465

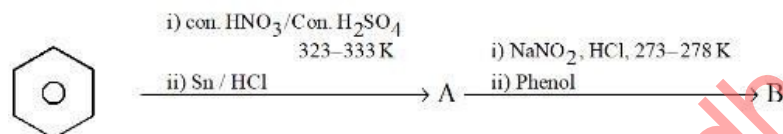
Option 3 ID : 4058593464

Option 4 ID : 4058593463

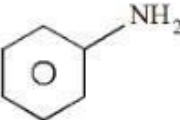

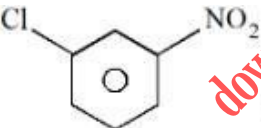
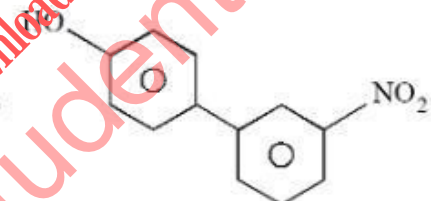
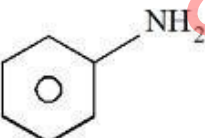
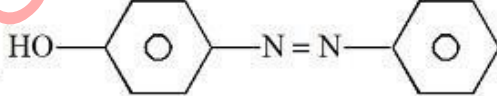
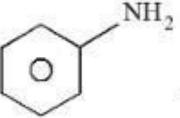
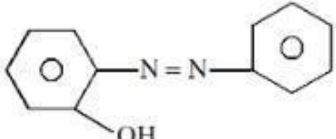
Status : Answered

Chosen Option : 2

Q.79 The products A and B formed in the following reaction scheme are respectively



Options

1.  , 
2.  , 
3.  , 
4.  , 

Question Type : MCQ

Question ID : 4058591093

Option 1 ID : 4058593483

Option 2 ID : 4058593484

Option 3 ID : 4058593485

Option 4 ID : 4058593486

Status : Answered

Chosen Option : 2

Q.80 The correct stability order of carbocations is

Options

1. $\overset{+}{\text{C}}\text{H}_3 > (\text{CH}_3)_2\overset{+}{\text{C}}\text{H} > \text{CH}_3 - \overset{+}{\text{C}}\text{H}_2 > (\text{CH}_3)_3\overset{+}{\text{C}}$
2. $(\text{CH}_3)_3\overset{+}{\text{C}} > (\text{CH}_3)_2\overset{+}{\text{C}}\text{H} > \text{CH}_3 - \overset{+}{\text{C}}\text{H}_2 > \overset{+}{\text{C}}\text{H}_3$
3. $(\text{CH}_3)_3\text{C}^+ > \text{CH}_3 - \overset{+}{\text{C}}\text{H}_2 > (\text{CH}_3)_2\overset{+}{\text{C}}\text{H} > \overset{+}{\text{C}}\text{H}_3$
4. $\overset{+}{\text{C}}\text{H}_3 > \text{CH}_3 - \overset{+}{\text{C}}\text{H}_2 > \text{CH}_3 - \overset{+}{\underset{\text{CH}_3}{\text{C}}}\text{H} > (\text{CH}_3)_3\text{C}^+$

Question Type : MCQ

Question ID : 4058591087

Option 1 ID : 4058593460

Option 2 ID : 4058593461

Option 3 ID : 4058593462

Option 4 ID : 4058593459

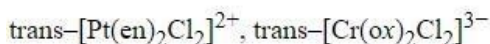
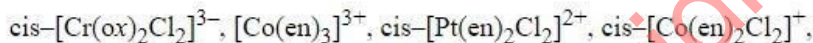
Status : Answered

Chosen Option : 3

Section : Chemistry Section B

Q.81 Number of complexes which show optical isomerism among the following is

_____.



Given --

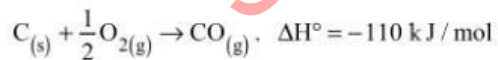
Answer :

Question Type : SA

Question ID : 4058591100

Status : Not Answered

Q.82 नीचे दूँटि बिक्रिया देओया हल:



ताहले नीचेर बिक्रियाय $3\text{C}_{(s)} + \text{Fe}_2\text{O}_{3(s)} \rightarrow 2\text{Fe}_{(s)} + 3\text{CO}_{(g)}$ एनथ्यालपि परिवर्तन _____ kJ/mol.

Given --

Answer :

Question Type : SA

Question ID : 4058591096

Status : Not Answered

Q.83 The total number of correct statements, regarding the nucleic acids is _____

- A. RNA is regarded as the reserve of genetic information
- B. DNA molecule self-duplicates during cell division
- C. DNA synthesizes proteins in the cell
- D. The message for the synthesis of particular proteins is present in DNA
- E. Identical DNA strands are transferred to daughter cells.

Given --
Answer :

Question Type : SA
Question ID : 4058591103
Status : Not Answered

Q.84 2-chlorobutane + $\text{Cl}_2 \rightarrow \text{C}_4\text{H}_8\text{Cl}_2$ (isomers)

Total number of optically active isomers shown by $\text{C}_4\text{H}_8\text{Cl}_2$, obtained in the above reaction is _____.

Given --
Answer :

Question Type : SA
Question ID : 4058591102
Status : Not Answered

Q.85 Number of spectral lines obtained in He^+ spectra, when an electron makes transition from fifth excited state to first excited state will be _____.

Given --
Answer :

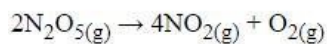
Question Type : SA
Question ID : 4058591095
Status : Not Answered

Q.86 The pH of an aqueous solution containing 1M benzoic acid ($\text{pK}_a = 4.20$) and 1M sodium benzoate is 4.5. The volume of benzoic acid solution in 300 mL of this buffer solution is _____ mL. (given : $\log 2 = 0.3$)

Given --
Answer :

Question Type : SA
Question ID : 4058591097
Status : Not Answered

Q.87 NO_2 required for a reaction is produced by decomposition of N_2O_5 in CCl_4 as by equation



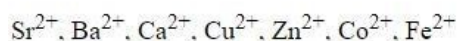
The initial concentration of N_2O_5 is 3 mol L^{-1} and it is 2.75 mol L^{-1} after 30 minutes.

The rate of formation of NO_2 is $x \times 10^{-3} \text{ mol L}^{-1} \text{ min}^{-1}$, value of x is _____, (nearest integer)

Given --
Answer :

Question Type : SA
Question ID : 4058591099
Status : Not Answered

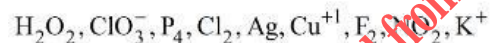
Q.88 Number of metal ions characterized by flame test among the following is _____.



Given --
Answer :

Question Type : SA
Question ID : 4058591104
Status : Not Answered

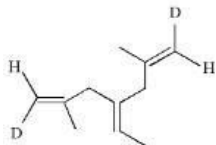
Q.89 Total number of species from the following which can undergo disproportionation reaction is _____.



Given --
Answer :

Question Type : SA
Question ID : 4058591098
Status : Not Answered

Q.90 Number of geometrical isomers possible for the given structure is/are _____.



Given 2
Answer :

Question Type : SA
Question ID : 4058591101
Status : Answered