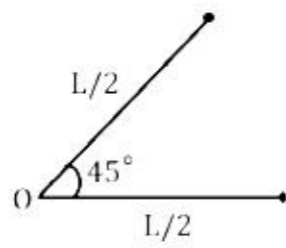


**Q.1** A thin uniform rod of length 'L' and mass 'M' is bent at the middle point 'O' at an angle of  $45^\circ$  as shown in the figure. The moment of inertia of the system about an axis passing through 'O' and perpendicular to the plane of the bent rod, is



**Ans**

✓ 1.  $\frac{ML^2}{12}$

✗ 2.  $\frac{ML^2}{24}$

✗ 3.  $\frac{ML^2}{3}$

✗ 4.  $\frac{ML^2}{6}$

Question Type : **MCQ**

Question ID : **37135116268**

Option 1 ID : **37135165071**

Option 2 ID : **37135165072**

Option 3 ID : **37135165069**

Option 4 ID : **37135165070**

Status : **Answered**

Chosen Option : **1**

Q.2

The ratio of the specific heats  $\frac{C_p}{C_v} = \gamma$  in terms of degrees of freedom 'n' is given by

Ans

1.  $\left(1 + \frac{n}{2}\right)$

2.  $\left(1 + \frac{1}{n}\right)$

3.  $\left(1 + \frac{n}{3}\right)$

4.  $\left(1 + \frac{2}{n}\right)$

Question Type : MCQ

Question ID : 37135116261

Option 1 ID : 37135165043

Option 2 ID : 37135165041

Option 3 ID : 37135165044

Option 4 ID : 37135165042

Status : Answered

Chosen Option : 4

**Q.3** When the observer moves towards a stationary source with velocity  $V_1$ , the apparent frequency of emitted note is  $F_1$ . When observer moves away from the source with velocity  $V_1$ , the apparent frequency is  $F_2$ . If  $V$  is the velocity of sound in air and  $F_1/F_2 = 2$  then  $V/V_1$  is equal to

**Ans**

1. 5

2. 6

3. 4

4. 3

Question Type : **MCQ**

Question ID : **37135116286**

Option 1 ID : **37135165143**

Option 2 ID : **37135165144**

Option 3 ID : **37135165142**

Option 4 ID : **37135165141**

Status : **Answered**

Chosen Option : **4**

Q.4 Two parallel wires of equal lengths are separated by a distance of 3m from each other. The currents flowing through first and second wire is 3A and 4.5 A respectively in opposite directions. The resultant magnetic field at mid-point of both the wires is ( $\mu_0$  = permeability of free space)

Ans

1.  $\frac{3\mu_0}{2\pi}$

2.  $\frac{7\mu_0}{2\pi}$

3.  $\frac{\mu_0}{2\pi}$

4.  $\frac{5\mu_0}{2\pi}$

Question Type : MCQ

Question ID : 37135116299

Option 1 ID : 37135165194

Option 2 ID : 37135165196

Option 3 ID : 37135165193

Option 4 ID : 37135165195

Status : Answered

Chosen Option : 2

Q.5

The angle made by a vector  $\vec{B} = 3\hat{i} + 2\hat{j} + 4\hat{k}$  with y-axis is

Ans

✗ 1.  $\cos^{-1} \left( \frac{5}{\sqrt{23}} \right)$

✗ 2.  $\cos^{-1} \left( \frac{4}{\sqrt{11}} \right)$

✗ 3.  $\cos^{-1} \left( \frac{3}{\sqrt{17}} \right)$

✓ 4.  $\cos^{-1} \left( \frac{2}{\sqrt{29}} \right)$

Question Type : MCQ

Question ID : 37135116265

Option 1 ID : 37135165057

Option 2 ID : 37135165059

Option 3 ID : 37135165060

Option 4 ID : 37135165058

Status : Answered

Chosen Option : 4

Q.6 An electron makes a transition from an excited state to the ground state of a hydrogen like atom. Out of the following statements which one is correct?

Ans

1. K.E., P.E. and T.E. decreases.

2.

K.E. decreases, P.E. increases but total energy remains the same.

3.

K.E. increases but P.E. and T.E. decreases.

4.

K.E. and T.E. decreases but P.E. increases.

Question Type : MCQ

Question ID : 37135116278

Option 1 ID : 37135165109

Option 2 ID : 37135165112

Option 3 ID : 37135165110

Option 4 ID : 37135165111

Status : Answered

Chosen Option : 2

Q.7 In transistor amplifier, base-emitter junction is forward biased and collector emitter junction is reverse biased. The current gain is

Ans

1.  $\frac{\Delta I_E}{\Delta I_B}$

2.  $\frac{\Delta I_B}{\Delta I_E}$

3.  $\frac{\Delta I_B}{\Delta I_C}$

4.  $\frac{\Delta I_C}{\Delta I_B}$

Question Type : MCQ

Question ID : 37135116254

Option 1 ID : 37135165015

Option 2 ID : 37135165016

Option 3 ID : 37135165013

Option 4 ID : 37135165014

Status : Answered

Chosen Option : 2

Q.8 The maximum error in the measurement of mass and length is 4% and 3% respectively. The error in the measurement of density of a cube will be

Ans

1. 9 %

2. 15 %

3. 13 %

4. 6 %

Question Type : MCQ

Question ID : 37135116255

Option 1 ID : 37135165019

Option 2 ID : 37135165017

Option 3 ID : 37135165018

Option 4 ID : 37135165020

Status : Answered

Chosen Option : 1

Q.9 If two sources emit light waves of different amplitudes then in interference pattern

Ans  1.

fringes disappear after short time.

2. brightness of fringes is less.

3.

there is some intensity of light in the region of destructive interference.

4. fringe width will be less.

Question Type : MCQ

Question ID : 37135116287

Option 1 ID : 37135165148

Option 2 ID : 37135165145

Option 3 ID : 37135165146

Option 4 ID : 37135165147

Status : Answered

Chosen Option : 1



Q.10 The radius of the orbit of a geostationary satellite is (mean radius of the earth is R, angular velocity about an axis is  $\omega$  and acceleration due to gravity on earth's surface is g)

Ans

✓ 1.  $\left(\frac{gR^2}{\omega^2}\right)^{1/3}$

✗ 2.  $\frac{gR^2}{\omega^2}$

✗ 3.  $\left(\frac{gR^2}{\omega^2}\right)^{2/3}$

✗ 4.  $\left(\frac{gR^2}{\omega^2}\right)^{1/2}$

Question Type : MCQ

Question ID : 37135116253

Option 1 ID : 37135165012

Option 2 ID : 37135165011

Option 3 ID : 37135165009

Option 4 ID : 37135165010

Status : Answered

Chosen Option : 3

**Q.11** A thin circular ring of mass 'M' and radius 'R' is rotating about a transverse axis passing through its centre with constant angular velocity ' $\omega$ '. Two objects each of mass 'm' are attached gently to the opposite ends of a diameter of the ring. What is the new angular velocity?

Ans

✓ 1.  $\frac{M\omega}{M+2m}$

✗ 2.  $\frac{M\omega}{M+m}$

✗ 3.  $\frac{(M+2m)\omega}{M}$

✗ 4.  $\frac{(M-2m)\omega}{M+2m}$

Question Type : **MCQ**

Question ID : **37135116257**

Option 1 ID : **37135165028**

Option 2 ID : **37135165025**

Option 3 ID : **37135165026**

Option 4 ID : **37135165027**

Status : **Answered**

Chosen Option : **3**

Q.12 Out of the fundamental forces in nature, maximum and minimum range is respectively for

Ans  1.

gravitational force, weak nuclear force.

 2.

gravitational force, electromagnetic force.

 3.

strong nuclear force, electromagnetic force.

 4.

electromagnetic force, gravitational force.

Question Type : **MCQ**

Question ID : **37135116280**

Option 1 ID : **37135165117**

Option 2 ID : **37135165119**

Option 3 ID : **37135165118**

Option 4 ID : **37135165120**

Status : **Answered**

Chosen Option : **2**

Q.13 Two unit vectors ' $\hat{a}_1$ ' and ' $\hat{a}_2$ ' are inclined to each other at an angle ' $\theta$ '.

If  $|\hat{a}_1 - \hat{a}_2| = \sqrt{3}$ , then the value of  $(\hat{a}_1 - \hat{a}_2) \cdot (2\hat{a}_1 - \hat{a}_2)$  is

Ans

1.  $\frac{1}{2}$

2. 2

3. 1

4.  $\frac{3}{2}$

Question Type : MCQ

Question ID : 37135116270

Option 1 ID : 37135165080

Option 2 ID : 37135165077

Option 3 ID : 37135165079

Option 4 ID : 37135165078

Status : Answered

Chosen Option : 4

Q.14 When light of wavelength ' $\lambda$ ' is incident on photosensitive surface, photons of power ' $P$ ' are emitted. The number of photons ( $n$ ) emitted in ' $t$ ' second is  
( $h$ = Planck's constant,  $c$ = velocity of light in vacuum)

Ans

1.  $\frac{hc}{P\lambda t}$

2.  $\frac{P\lambda t}{hc}$

3.  $\frac{P\lambda}{htc}$

4.  $\frac{hP}{\lambda tc}$

Question Type : MCQ

Question ID : 37135116298

Option 1 ID : 37135165189

Option 2 ID : 37135165190

Option 3 ID : 37135165191

Option 4 ID : 37135165192

Status : Answered

Chosen Option : 2

**Q.15** A spring executes S.H.M. with mass 10 kg attached to it. The force constant of the spring is 10 N/m. If at any instant its velocity is 40 cm/s, the displacement at that instant is (Amplitude of S.H.M. = 0.5 m)

Ans

- ✓ 1. 0.3 m
- ✗ 2. 0.2 m
- ✗ 3. 0.4 m
- ✗ 4. 0.45 m

Question Type : **MCQ**

Question ID : **37135116279**

Option 1 ID : **37135165114**

Option 2 ID : **37135165113**

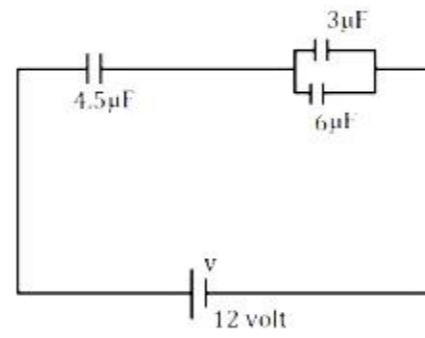
Option 3 ID : **37135165115**

Option 4 ID : **37135165116**

Status : **Answered**

Chosen Option : **3**

Q.16 In the circuit shown, the potential difference across the  $4.5\mu\text{F}$  capacitor is



Ans

1.  $\frac{8}{3}$  volt

2. 8 volt

3. 6 volt

4. 4 volt

Question Type : MCQ

Question ID : 37135116293

Option 1 ID : 37135165169

Option 2 ID : 37135165172

Option 3 ID : 37135165171

Option 4 ID : 37135165170

Status : Answered

Chosen Option : 4

Q.17 The length of the seconds pendulum is decreased by 0.3 cm when it is shifted from place A to place B. If the acceleration due to gravity at place A is  $981 \text{ cm/s}^2$ , the acceleration due to gravity at place B is ( Take  $\pi^2 = 10$  )

Ans

1.  $975 \text{ cm/s}^2$

2.  $978 \text{ cm/s}^2$

3.  $984 \text{ cm/s}^2$

4.  $981 \text{ cm/s}^2$

Question Type : MCQ

Question ID : 37135116272

Option 1 ID : 37135165088

Option 2 ID : 37135165086

Option 3 ID : 37135165087

Option 4 ID : 37135165085

Status : Answered

Chosen Option : 4



Q.18 A galvanometer has resistance 'G' and range 'V<sub>g</sub>'. How much resistance is required to read voltage upto 'V' volt?

Ans

1.  $\frac{G(V+V_g)}{V}$

2.  $G\left(\frac{V}{V_g} - 1\right)$

3.  $\frac{G(V-V_g)}{V}$

4.  $G V_g$

Question Type : MCQ

Question ID : 37135116269

Option 1 ID : 37135165074

Option 2 ID : 37135165076

Option 3 ID : 37135165075

Option 4 ID : 37135165073

Status : Answered

Chosen Option : 3

Q.19 In fundamental mode, the time required for the sound wave to reach upto the closed end of a pipe filled with air is 't' second. The frequency of vibration of air column is

Ans

1.  $\frac{1}{3t}$

2.  $\frac{1}{t}$

3.  $\frac{1}{4t}$

4.  $\frac{1}{2t}$

Question Type : MCQ

Question ID : 37135116274

Option 1 ID : 37135165094

Option 2 ID : 37135165096

Option 3 ID : 37135165093

Option 4 ID : 37135165095

Status : Answered

Chosen Option : 4

Q.20

The relation between total magnetic field (B) , magnetic intensity (H) , permeability

of free space ( $\mu_0$ ) and susceptibility ( $x$ ) is

Ans

✓ 1.  $\frac{B}{H} = \mu_0(1 + x)$

✗ 2.  $\frac{H}{B} = \mu_0(1 - x)$

✗ 3.  $\frac{B}{H} = \mu_0(1 - x)$

✗ 4.  $\frac{H}{B} = \mu_0(1 + x)$

Question Type : **MCQ**

Question ID : **37135116262**

Option 1 ID : **37135165045**

Option 2 ID : **37135165048**

Option 3 ID : **37135165047**

Option 4 ID : **37135165046**

Status : **Answered**

Chosen Option : **1**

**Q.21** A solid sphere of mass 'M' and radius 'R' has moment of inertia 'I' about its diameter.  
It is recast into a disc of thickness 't' whose moment of inertia about an axis passing through its edge and perpendicular to its plane, remains 'I'. Radius of the disc will be

**Ans**

1.  $R/\sqrt{19}$

2.  $R/\sqrt{15}$

3.  $2R/\sqrt{15}$

4.  $2R/\sqrt{19}$

Question Type : **MCQ**

Question ID : **37135116288**

Option 1 ID : **37135165152**

Option 2 ID : **37135165150**

Option 3 ID : **37135165149**

Option 4 ID : **37135165151**

Status : **Answered**

Chosen Option : **2**

Q.22 In a capacitive circuit, the reactance of capacitor at frequency 'f' is ' $X_c$ '. What will be its reactance at frequency 4f?

Ans

1.  $\frac{X_c}{2}$

2.  $\frac{X_c}{4}$

3.  $\frac{X_c}{8}$

4.  $X_c$

Question Type : MCQ

Question ID : 37135116258

Option 1 ID : 37135165030

Option 2 ID : 37135165031

Option 3 ID : 37135165032

Option 4 ID : 37135165029

Status : Answered

Chosen Option : 1

Q.23 The air column in an organ pipe closed at one end is made to vibrate so that there are 2 nodes and antinodes each. The mode of vibration is called

Ans

1. 3<sup>rd</sup> overtone

2. 1<sup>st</sup> overtone

3. fundamental

4. 2<sup>nd</sup> overtone

Question Type : MCQ

Question ID : 37135116259

Option 1 ID : 37135165036

Option 2 ID : 37135165034

Option 3 ID : 37135165033

Option 4 ID : 37135165035

Status : Answered

Chosen Option : 2

Q.24 The magnifying power of an refracting type of astronomical telescope is 'm'. If focal length of the eyepiece is doubled, the magnifying power will become

Ans

1.  $\frac{m}{4}$

2.  $\frac{m}{2}$

3.  $2m$

4.  $m$

Question Type : MCQ

Question ID : 37135116295

Option 1 ID : 37135165180

Option 2 ID : 37135165179

Option 3 ID : 37135165178

Option 4 ID : 37135165177

Status : Answered

Chosen Option : 3

Q.25 An electron of mass 'm' is revolving around the nucleus in a circular orbit of radius 'r' has angular momentum 'L'. The magnetic field produced by the electron at the centre of the orbit is

(e = electric charge,  $\mu_0$  = permeability of free space)

Ans

1.  $\frac{\mu_0 eL}{4\pi m r^2}$

2.  $\frac{\mu_0 eL}{4\pi m r^3}$

3.  $\frac{\mu_0 eL}{2\pi m r^2}$

4.  $\frac{\mu_0 eL}{2\pi m r^3}$

Question Type : MCQ

Question ID : 37135116281

Option 1 ID : 37135165122

Option 2 ID : 37135165123

Option 3 ID : 37135165124

Option 4 ID : 37135165121

Status : Answered

Chosen Option : 3

**Q.26** A liquid kept in a cylindrical vessel is rotated about vertical axis through the centre of circular base. The difference in the heights of the liquid at the centre of vessel and its edge is ( $R$  = radius of vessel,  $\omega$  = angular velocity of rotation,  $g$  = acceleration due to gravity)

Ans

1.  $\frac{R^2 \omega^2}{g}$

2.  $\frac{R\omega}{g}$

3.  $\frac{R\omega}{2g}$

4.  $\frac{R^2 \omega^2}{2g}$

Question Type : **MCQ**

Question ID : **37135116285**

Option 1 ID : **37135165138**

Option 2 ID : **37135165140**

Option 3 ID : **37135165137**

Option 4 ID : **37135165139**

Status : **Answered**

Chosen Option : **2**



Q.27 A potentiometer wire has length 4m and resistance  $5\ \Omega$ . It is connected in series with  $495\ \Omega$  resistance and a cell of e.m.f. 4V. The potential gradient along the wire is

Ans

1.  $0.03\ \text{V/m}$

2.  $0.01\ \text{V/m}$

3.  $0.02\ \text{V/m}$

4.  $0.04\ \text{V/m}$

Question Type : MCQ

Question ID : 37135116273

Option 1 ID : 37135165091

Option 2 ID : 37135165089

Option 3 ID : 37135165090

Option 4 ID : 37135165092

Status : Answered

Chosen Option : 2

Q.28 Two wires A and B having same length and material are stretched by the same force. Their diameters are in the ratio 1 : 3. The ratio of energy density of wire A to that of wire B when stretched , is

Ans

1. 27 : 1

2. 9 : 1

3. 81 : 1

4. 3 : 1

Question Type : MCQ

Question ID : 37135116266

Option 1 ID : 37135165063

Option 2 ID : 37135165062

Option 3 ID : 37135165064

Option 4 ID : 37135165061

Status : Answered

Chosen Option : 2

Q.29 A particle moves along a circular path with decreasing speed. Hence

Ans  1.

its resultant acceleration is towards the centre.

 2.

its angular momentum remains constant.

 3.

the direction of angular momentum remains constant.

 4.

it moves in a spiral path with decreasing radius.

Question Type : **MCQ**

Question ID : **37135116294**

Option 1 ID : **37135165176**

Option 2 ID : **37135165174**

Option 3 ID : **37135165173**

Option 4 ID : **37135165175**

Status : **Answered**

Chosen Option : **3**

Q.30 A ray of light is incident at an angle of incidence 'i' on one surface of a thin prism of small angle 'A'. The ray emerges normally from the opposite surface. If the refractive index of the material of the prism is ' $\mu$ ', the angle of incidence 'i' is nearly equal to

Ans

1.  $\frac{A}{\mu}$

2.  $\frac{\mu A}{2}$

3.  $\mu A$

4.  $\frac{A}{2\mu}$

Question Type : MCQ

Question ID : 37135116290

Option 1 ID : 37135165157

Option 2 ID : 37135165159

Option 3 ID : 37135165160

Option 4 ID : 37135165158

Status : Answered

Chosen Option : 4

Q.31

In which layer of the atmosphere, the water vapour is present ?

Ans

✓ 1. Troposphere

✗ 2. Ionosphere

✗ 3. Mesosphere

✗ 4. Stratosphere

Question Type : MCQ

Question ID : 37135116291

Option 1 ID : 37135165161

Option 2 ID : 37135165162

Option 3 ID : 37135165164

Option 4 ID : 37135165163

Status : Answered

Chosen Option : 4

Q.32

Scale of galvanometer divided into 100 equal divisions has a current sensitivity 10 div./mA and voltage sensitivity 4 div./mV. The resistance of galvanometer is

Ans

✗ 1. 5  $\Omega$

✓ 2. 2.5  $\Omega$

✗ 3. 10  $\Omega$

✗ 4. 7.5  $\Omega$

Question Type : MCQ

Question ID : 37135116289

Option 1 ID : 37135165154

Option 2 ID : 37135165153

Option 3 ID : 37135165156

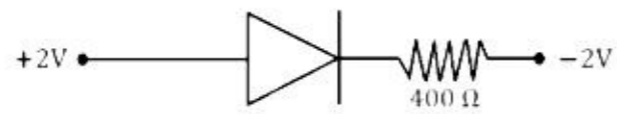
Option 4 ID : 37135165155

Status : Answered

Chosen Option : 2

Q.33

For an ideal diode, the current in the following arrangement is



Ans

1. 10 A

2. 10 mA

3. 20 mA

4. 1 mA

Question Type : MCQ

Question ID : 37135116283

Option 1 ID : 37135165132

Option 2 ID : 37135165130

Option 3 ID : 37135165129

Option 4 ID : 37135165131

Status : Answered

Chosen Option : 2

Q.34

Let ' $R_1$ ' and ' $R_2$ ' are radii of two mercury drops. A big mercury drop is formed from them under isothermal conditions. The radius of the resultant drop is

Ans

1.  $R = \sqrt{R_1^2 - R_2^2}$

2.  $R = \frac{R_1 + R_2}{2}$

3.  $R = \sqrt{R_1^2 + R_2^2}$

4.  $R = (R_1^3 + R_2^3)^{\frac{1}{3}}$

Question Type : MCQ

Question ID : 37135116263

Option 1 ID : 37135165050

Option 2 ID : 37135165052

Option 3 ID : 37135165049

Option 4 ID : 37135165051

Status : Answered

Chosen Option : 3

Q.35 The magnitude of magnetic fields at a distance 'r' from the centre of a short bar magnet, in longitudinal position to transverse position is in the ratio

Ans

1. 4 : 1

2. 2 : 1

3. 1 : 4

4. 1 : 2

Question Type : MCQ

Question ID : 37135116260

Option 1 ID : 37135165039

Option 2 ID : 37135165040

Option 3 ID : 37135165038

Option 4 ID : 37135165037

Status : Answered

Chosen Option : 2

Q.36 A body is projected vertically upwards from earth's surface. If its K.E. of projection is equal to half of its minimum value required to escape from the gravitational influence, then the height upto which it rises is (R = radius of the earth)

Ans

1. 4R

2. R

3. 2R

4. 3R

Question Type : MCQ

Question ID : 37135116282

Option 1 ID : 37135165128

Option 2 ID : 37135165125

Option 3 ID : 37135165126

Option 4 ID : 37135165127

Status : Answered

Chosen Option : 3

Q.37

A black rectangular surface of area A emits energy E per second at 27°C. If length and breadth is reduced to  $\left(\frac{1}{3}\right)^{\text{rd}}$  of initial value and temperature is raised to 327°C then energy emitted per second becomes

Ans

✗ 1.  $2E/9$

✗ 2.  $E/9$

✓ 3.  $16E/9$

✗ 4.  $4E/9$

Question Type : MCQ

Question ID : 37135116296

Option 1 ID : 37135165182

Option 2 ID : 37135165181

Option 3 ID : 37135165184

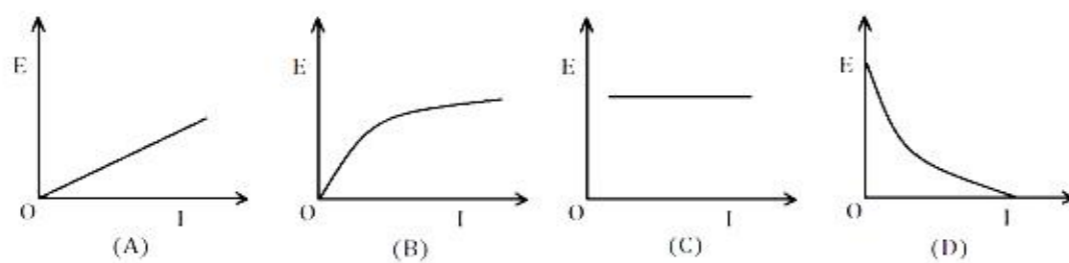
Option 4 ID : 37135165183

Status : Answered

Chosen Option : 1



**Q.38** Out of the following graphs, which graph shows the correct variation of maximum kinetic energy ( $E$ ) of photo electron with intensity of incident radiation ( $I$ )?



Ans

1. (D)

2. (B)

3. (A)

4. (C)

Question Type : MCQ

Question ID : 37135116267

Option 1 ID : 37135165068

Option 2 ID : 37135165066

Option 3 ID : 37135165065

Option 4 ID : 37135165067

Status : Answered

Chosen Option : 4

Q.39 A particle rotates in horizontal circle of radius 'R' in a conical funnel, with speed 'V'.  
The inner surface of the funnel is smooth. The height of the plane of the circle from the vertex of the funnel is (g = acceleration due to gravity)

Ans

1.  $\frac{V^2}{2g}$

2.  $\frac{V}{g}$

3.  $\frac{V^2}{g}$

4.  $\frac{V}{2g}$

Question Type : MCQ

Question ID : 37135116277

Option 1 ID : 37135165108

Option 2 ID : 37135165106

Option 3 ID : 37135165107

Option 4 ID : 37135165105

Status : Answered

Chosen Option : 2

**Q.40** A metal rod of length  $L$  and cross-sectional area  $A$  is heated through  $T$  °C. What is the force required to prevent the expansion of the rod lengthwise?

( $Y$  = Young's modulus of material of the rod,  $\alpha$  = coefficient of linear expansion of the rod.)

Ans

1.  $YA\alpha/T (1 + \alpha T)$

2.  $YA\alpha T / (1 - \alpha T)$

3.  $YA\alpha T / (1 + \alpha T)$

4.  $YA\alpha / (1 - \alpha T)$

Question Type : MCQ

Question ID : 37135116297

Option 1 ID : 37135165187

Option 2 ID : 37135165186

Option 3 ID : 37135165185

Option 4 ID : 37135165188

Status : Answered

Chosen Option : 2

Q.41 A copper wire of length 'L' and diameter 'D' is to be reshaped into another wire so as to have minimum resistance. For this we should

Ans

1. increase L and decrease D.

2. decrease L and increase D.

3. decrease both L and D.

4. increase both L and D.

Question Type : MCQ

Question ID : 37135116252

Option 1 ID : 37135165008

Option 2 ID : 37135165007

Option 3 ID : 37135165006

Option 4 ID : 37135165005

Status : Answered

Chosen Option : 2

Q.42 Ratio of centripetal acceleration for an electron revolving in 3<sup>rd</sup> orbit to 5<sup>th</sup> Bohr orbit

of hydrogen atom is

Ans

1.  $\frac{424}{21}$

2.  $\frac{625}{81}$

3.  $\frac{125}{4}$

4.  $\frac{775}{61}$

Question Type : MCQ

Question ID : 37135116271

Option 1 ID : 37135165082

Option 2 ID : 37135165084

Option 3 ID : 37135165081

Option 4 ID : 37135165083

Status : Answered

Chosen Option : 2

Q.43 A particle performs S.H.M. from the mean position. Its amplitude is 'A' and total energy is 'E'. At a particular instant its kinetic energy is  $\frac{3E}{4}$ . The displacement of the particle at that instant is

Ans

1. A

2.  $\frac{A}{8}$

3.  $\frac{A}{4}$

4.  $\frac{A}{2}$

Question Type : MCQ

Question ID : 37135116251

Option 1 ID : 37135165004

Option 2 ID : 37135165001

Option 3 ID : 37135165002

Option 4 ID : 37135165003

Status : Answered

Chosen Option : 3

**Q.44** A capillary tube is vertically immersed in water, water rises upto a height ' $h_1$ '. When the whole arrangement is taken to a depth ' $d$ ' in a mine, the water level rises upto height ' $h_2$ '. The ratio  $h_1/h_2$  is

( $R$  = radius of earth)

**Ans**

1.  $(1 + \frac{2d}{R})$

2.  $(1 - \frac{d}{R})$

3.  $(1 + \frac{d}{R})$

4.  $(1 - \frac{2d}{R})$

Question Type : **MCQ**

Question ID : **37135116284**

Option 1 ID : **37135165136**

Option 2 ID : **37135165133**

Option 3 ID : **37135165134**

Option 4 ID : **37135165135**

Status : **Answered**

Chosen Option : **2**

**Q.45** A transverse wave is travelling on a string with velocity 'V'. The extension in the string is 'x'. If the string is extended by 50%, the speed of the wave along the string will be nearly (Hooke's law is obeyed)

**Ans**

1. (0.7) V

2. (1.22) V

3. (1.1) V

4. (0.9) V

Question Type : MCQ

Question ID : 37135116292

Option 1 ID : 37135165168

Option 2 ID : 37135165165

Option 3 ID : 37135165166

Option 4 ID : 37135165167

Status : Answered

Chosen Option : 4

**Q.46** The kinetic energy acquired by a body of mass 'M' in travelling a certain distance 'd', starting from rest, under the action of constant force is

**Ans**

1. inversely proportional to  $\sqrt{M}$ .

2. directly proportional to M.

3. independent of M.

4. directly proportional to  $\sqrt{M}$ .

Question Type : MCQ

Question ID : 37135116275

Option 1 ID : 37135165100

Option 2 ID : 37135165098

Option 3 ID : 37135165097

Option 4 ID : 37135165099

Status : Answered

Chosen Option : 2





Q.47 Light waves from two coherent sources arrive at two points on a screen with path difference of zero and  $\lambda/2$ . The ratio of the intensities at the points is

Ans

1. two : one

2. one : two

3. one : one

4. infinity : one

Question Type : MCQ

Question ID : 37135116256

Option 1 ID : 37135165021

Option 2 ID : 37135165023

Option 3 ID : 37135165022

Option 4 ID : 37135165024

Status : Answered

Chosen Option : 2

Q.48 When unpolarised light is passed through crossed polaroids, then light passing through first polaroid

Ans  1.

also passes through second polaroid.

2.

partially passes through second polaroid.

3. is blocked by second polaroid.

4. passes with greater intensity.

Question Type : MCQ

Question ID : 37135116300

Option 1 ID : 37135165197

Option 2 ID : 37135165199

Option 3 ID : 37135165198

Option 4 ID : 37135165200

Status : Answered

Chosen Option : 3



Q.49 In series LCR circuit, resistance is  $18\ \Omega$  and impedance is  $33\ \Omega$ . An r.m.s. voltage of  $220\ \text{V}$  is applied across the circuit. The true power consumed in a.c. circuit is

Ans

1.  $400\ \text{V}$

2.  $600\ \text{V}$

3.  $800\ \text{V}$

4.  $200\ \text{V}$

Question Type : **MCQ**

Question ID : **37135116276**

Option 1 ID : **37135165102**

Option 2 ID : **37135165103**

Option 3 ID : **37135165104**

Option 4 ID : **37135165101**

Status : **Answered**

Chosen Option : **4**

Q.50 A metal sphere of radius 1 m is charged with  $10^{-2}\text{C}$  in air. Its bulk modulus is  $10^{11}/4\pi^2$ . The volume strain in the sphere is ( $\epsilon_0 =$  permittivity of free space)

Ans

1.  $\frac{10^{-1}}{6\epsilon_0}$

2.  $\frac{10^{-14}}{8\epsilon_0}$

3.  $\frac{10^{-15}}{8\epsilon_0}$

4.  $\frac{10^{-12}}{4\epsilon_0}$

Question Type : MCQ

Question ID : 37135116264

Option 1 ID : 37135165053

Option 2 ID : 37135165056

Option 3 ID : 37135165054

Option 4 ID : 37135165055

Status : Answered

Chosen Option : 2

Section: Chemistry

Q.1 What is the role of tuyers used in blast furnace for extraction of iron ?

Ans  1.

It enables the even distribution of charge.

2.

To blow a blast of preheated air in to the furnace.

3.

It is used to remove molten slag and iron.

4.

It prevents loss of hot gases.

Question Type : MCQ

Question ID : 37135116322

Option 1 ID : 37135165286

Option 2 ID : 37135165288

Option 3 ID : 37135165287

Option 4 ID : 37135165285

Status : Answered

Chosen Option : 2

Q.2 Which of the following compounds contain -CO-NH- linkage ?

Ans

1. Vinylcyanide

2. Dimethylterephthalate

3.  $\epsilon$  caprolactum

4. Hexamethylenediamine

Question Type : MCQ

Question ID : 37135116331

Option 1 ID : 37135165321

Option 2 ID : 37135165324

Option 3 ID : 37135165322

Option 4 ID : 37135165323

Status : Answered

Chosen Option : 3

Q.3 Primary nitroalkanes on boiling with hydrochloric acid undergo hydrolysis to form

Ans

1. Alcohol and nitrous acid

2.

Carboxylic acid and hydroxyl amine

3.

Aldehyde and hydroxyl amine

4. Ketone and nitrous acid

Question Type : MCQ

Question ID : 37135116311

Option 1 ID : 37135165241

Option 2 ID : 37135165244

Option 3 ID : 37135165243

Option 4 ID : 37135165242

Status : Answered

Chosen Option : 1

Q.4 How many moles of acetic acid is obtained in the reaction when one mole glucose is treated with excess acetic anhydride ?

Ans

1. 5 moles

2. 3 moles

3. 4 moles

4. 2 moles

Question Type : MCQ

Question ID : 37135116348

Option 1 ID : 37135165392

Option 2 ID : 37135165390

Option 3 ID : 37135165391

Option 4 ID : 37135165389

Status : Answered

Chosen Option : 2

Q.5 Which from following methods is NOT used to preserve food ?

Ans

- 1. Removel of heat
- 2. Irradiation
- 3. Addition of water
- 4. Addition of heat

Question Type : MCQ

Question ID : 37135116323

Option 1 ID : 37135165289

Option 2 ID : 37135165291

Option 3 ID : 37135165292

Option 4 ID : 37135165290

Status : Answered

Chosen Option : 3

Q.6 What is molecular formula of 3-bromopropene ?

Ans

- 1.  $C_3H_6Br$
- 2.  $C_3H_7Br$
- 3.  $C_3H_5Br$
- 4.  $C_3H_3Br$

Question Type : MCQ

Question ID : 37135116327

Option 1 ID : 37135165306

Option 2 ID : 37135165305

Option 3 ID : 37135165307

Option 4 ID : 37135165308

Status : Answered

Chosen Option : 3

Q.7 Which of the following conditions indicates the reaction is spontaneous ?

Ans  1.

$\Delta S < 0, \Delta H > 0, \Delta G > 0$  at all temperature

2.

$\Delta S < 0, \Delta H > 0, \Delta G > 0$  at low temperature

3.

$\Delta S > 0, \Delta H < 0, \Delta G < 0$  at all temperature

4.

$\Delta S < 0, \Delta H > 0, \Delta G > 0$  at high temperature

Question Type : MCQ

Question ID : 37135116301

Option 1 ID : 37135165204

Option 2 ID : 37135165202

Option 3 ID : 37135165201

Option 4 ID : 37135165203

Status : Answered

Chosen Option : 3

Q.8 Which among the following is NOT a mineral of chlorine ?

Ans

1. Horn silver

2. Cryolite

3. Carnalite

4. Sylvine

Question Type : MCQ

Question ID : 37135116316

Option 1 ID : 37135165264

Option 2 ID : 37135165263

Option 3 ID : 37135165261

Option 4 ID : 37135165262

Status : Answered

Chosen Option : 2

Q.9 Which among the following is allylic secondary alcohol ?

Ans

1. But-2-en-1-ol

2. But-3-en-2-ol

3. 2-Methyl but-3-en-2-ol

4. Prop-2-en-1-ol

Question Type : MCQ

Question ID : 37135116334

Option 1 ID : 37135165336

Option 2 ID : 37135165334

Option 3 ID : 37135165335

Option 4 ID : 37135165333

Status : Answered

Chosen Option : 3

Q.10 Which of the following reaction does NOT involve replacement of diazonium group ?

Ans

1.

Reaction with potassium iodide

2. Reaction with aniline

3.

Reaction with cuprous chloride in HCl

4.

Reaction with hypophosphorus acid

Question Type : MCQ

Question ID : 37135116328

Option 1 ID : 37135165310

Option 2 ID : 37135165312

Option 3 ID : 37135165311

Option 4 ID : 37135165309

Status : Answered

Chosen Option : 4



**Q.11** If one 's', three 'p' and one 'd' atomic orbitals take part in hybridization, then number of hybrid orbitals formed are

**Ans**

✓ 1. 5

✗ 2. 3

✗ 3. 4

✗ 4. 2

Question Type : **MCQ**

Question ID : **37135116335**

Option 1 ID : **37135165340**

Option 2 ID : **37135165338**

Option 3 ID : **37135165339**

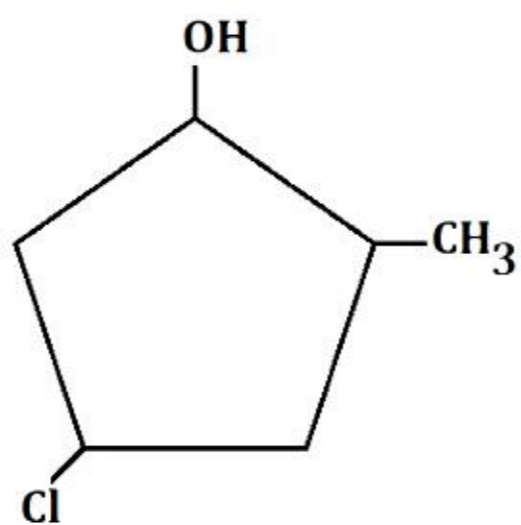
Option 4 ID : **37135165337**

Status : **Answered**

Chosen Option : **4**

Q.12

What is the IUPAC name of following compound ?



Ans

1.

3 - chloro - 5 - methyl cyclopentanol

2.

1 - chloro - 3 - methyl cyclopentan - 4 - ol

3.

4 - chloro - 2 - methyl cyclopentanol

4.

4 - chloro - 2 - hydroxy -1- methylcyclopentane

Question Type : MCQ

Question ID : 37135116318

Option 1 ID : 37135165270

Option 2 ID : 37135165269

Option 3 ID : 37135165271

Option 4 ID : 37135165272

Status : Answered

Chosen Option : 2

Q.13 Which among the following is mineral of Sulphur ?

Ans

1. Fluorapatite

2. Carnalite

3. Cinnabar

4. Sylvine

Question Type : MCQ

Question ID : 37135116305

Option 1 ID : 37135165217

Option 2 ID : 37135165219

Option 3 ID : 37135165220

Option 4 ID : 37135165218

Status : Answered

Chosen Option : 4

Q.14 An element with density  $2.8 \text{ g cm}^{-3}$  forms fcc unit cell having edge length  $4 \times 10^{-8} \text{ cm}$ . Calculate molar mass of the element.

Ans

1.  $33.0 \text{ g mol}^{-1}$

2.  $22.0 \text{ g mol}^{-1}$

3.  $27.0 \text{ g mol}^{-1}$

4.  $36.0 \text{ g mol}^{-1}$

Question Type : MCQ

Question ID : 37135116340

Option 1 ID : 37135165359

Option 2 ID : 37135165357

Option 3 ID : 37135165358

Option 4 ID : 37135165360

Status : Answered

Chosen Option : 3

**Q.15** Vapour pressure of solvent 'A' is 0.90 atm, when a non volatile solute is added, vapour pressure drops to 0.60 atm, what is mole fraction of A in solution ?

Ans

1. 0.300

2. 0.333

3. 0.500

4. 0.667

Question Type : **MCQ**

Question ID : **37135116314**

Option 1 ID : **37135165254**

Option 2 ID : **37135165253**

Option 3 ID : **37135165255**

Option 4 ID : **37135165256**

Status : **Answered**

Chosen Option : **4**

**Q.16** What is the source of an alkane if it's molar mass is  $240 \text{ g mol}^{-1}$  and the percentage by mass of hydrogen is 15 % ?

Ans

1. Gasoline

2. Diesel

3. Petrol

4. Coatings on green leaves

Question Type : **MCQ**

Question ID : **37135116344**

Option 1 ID : **37135165375**

Option 2 ID : **37135165376**

Option 3 ID : **37135165373**

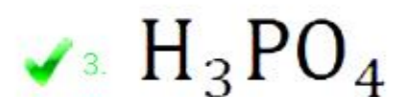
Option 4 ID : **37135165374**

Status : **Answered**

Chosen Option : **1**

Q.17  $P_4O_{10}$  reacts with water to produce

Ans



Question Type : MCQ

Question ID : 37135116330

Option 1 ID : 37135165318

Option 2 ID : 37135165317

Option 3 ID : 37135165320

Option 4 ID : 37135165319

Status : Answered

Chosen Option : 1

Q.18 The sum of oxidation states of all atoms in  $Cr_2O_7^{2-}$  ion is

Ans

1. Zero

2. -2

3. +2

4. -1

Question Type : MCQ

Question ID : 37135116317

Option 1 ID : 37135165266

Option 2 ID : 37135165268

Option 3 ID : 37135165265

Option 4 ID : 37135165267

Status : Answered

Chosen Option : 4

**Q.19** Chromyl chloride converts methyl group to a chromium complex, which on acid hydrolysis gives corresponding aldehyde. This reaction is called

**Ans**

- 1. Stephen reaction
- 2. Wolff-Kishner reaction
- 3. Etard reaction
- 4. Rosenmund reaction

Question Type : **MCQ**

Question ID : **37135116312**

Option 1 ID : **37135165247**

Option 2 ID : **37135165248**

Option 3 ID : **37135165246**

Option 4 ID : **37135165245**

Status : **Answered**

Chosen Option : **3**

**Q.20** Which of the following artificial sweetener contain chlorine in it's molecular formula ?

**Ans**

- 1. Saccharine
- 2. Alitame
- 3. Aspartame
- 4. Sucrulose

Question Type : **MCQ**

Question ID : **37135116337**

Option 1 ID : **37135165345**

Option 2 ID : **37135165348**

Option 3 ID : **37135165346**

Option 4 ID : **37135165347**

Status : **Answered**

Chosen Option : **1**

Q.21 If the conductivity of 0.08 M KCl solution is  $2 \times 10^{-2} \Omega^{-1}$ , what is the molar conductivity of the solution ?

Ans

- 1.  $350 \Omega^{-1} \text{cm}^2 \text{mol}^{-1}$
- 2.  $250 \Omega^{-1} \text{cm}^2 \text{mol}^{-1}$
- 3.  $25.0 \Omega^{-1} \text{cm}^2 \text{mol}^{-1}$
- 4.  $0.25 \Omega^{-1} \text{cm}^2 \text{mol}^{-1}$

Question Type : MCQ

Question ID : 37135116347

Option 1 ID : 37135165388

Option 2 ID : 37135165387

Option 3 ID : 37135165386

Option 4 ID : 37135165385

Status : Answered

Chosen Option : 2

Q.22 Which of the following alcohols is NOT prepared by acid catalyzed hydration of alkenes ?

Ans

- 1. Ethanol
- 2. Propan-2-ol
- 3. Propan-1-ol
- 4. 2-Methyl propan-2-ol

Question Type : MCQ

Question ID : 37135116308

Option 1 ID : 37135165229

Option 2 ID : 37135165232

Option 3 ID : 37135165231

Option 4 ID : 37135165230

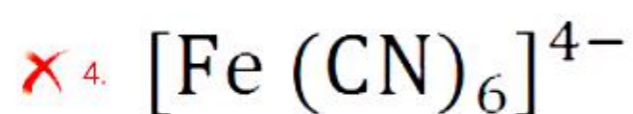
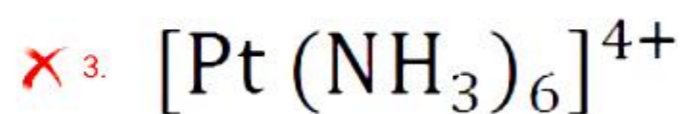
Status : Answered

Chosen Option : 4

Q.23 Which from following complexes, the central metal ion does NOT obey EAN rule ?

(Atomic number - Pt=78, Cu=29, Zn=30, Fe=26)

Ans



Question Type : MCQ

Question ID : 37135116324

Option 1 ID : 37135165295

Option 2 ID : 37135165294

Option 3 ID : 37135165293

Option 4 ID : 37135165296

Status : Answered

Chosen Option : 2

Q.24 The rate constant for first order reaction is  $0.02232 \text{ min}^{-1}$ . Calculate the time required for 75 % completion of the reaction.

Ans

✓ 1. 62.12 min

✗ 2. 38.31 min

✗ 3. 12.77 min

✗ 4. 48.12 min

Question Type : MCQ

Question ID : 37135116350

Option 1 ID : 37135165400

Option 2 ID : 37135165398

Option 3 ID : 37135165397

Option 4 ID : 37135165399

Status : Answered

Chosen Option : 2



Q.25

What is IUPAC name of  $[\text{CoCl}_2(\text{en})_2]^+$  ?

Ans

✓ 1.

Bis (ethylenediammine) dichloro cobalt (III) ion

✗ 2.

Dichloro ethylenediamine cobalt (I)

✗ 3.

Ethylene diamine cobalt (I) dichloride

✗ 4.

Ethylene diamine cobalt chloride

Question Type : MCQ

Question ID : 37135116303

Option 1 ID : 37135165211

Option 2 ID : 37135165210

Option 3 ID : 37135165212

Option 4 ID : 37135165209

Status : Answered

Chosen Option : 1

Q.26

What is the electronic configuration of third element of group-2 in periodic table ?

Ans

✗ 1.  $[\text{Ne}] 3\text{S}^1$

✗ 2.  $[\text{Ne}] 3\text{S}^2$

✗ 3.  $[\text{Ar}] 4\text{S}^1$

✓ 4.  $[\text{Ar}] 4\text{S}^2$

Question Type : MCQ

Question ID : 37135116307

Option 1 ID : 37135165225

Option 2 ID : 37135165227

Option 3 ID : 37135165226

Option 4 ID : 37135165228

Status : Answered

Chosen Option : 4

**Q.27** An element crystallises in a fcc lattice with cell edge 250 pm. Calculate the density of an element

(at.mass=90.3)

Ans

1. 23.12 g cm<sup>-3</sup>

2. 19.20 g cm<sup>-3</sup>

3. 48.40 g cm<sup>-3</sup>

4. 38.40 g cm<sup>-3</sup>

Question Type : MCQ

Question ID : 37135116349

Option 1 ID : 37135165394

Option 2 ID : 37135165393

Option 3 ID : 37135165396

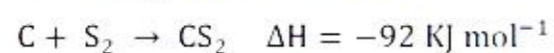
Option 4 ID : 37135165395

Status : Answered

Chosen Option : 2

**Q.28** What is the quantity of heat evolved when 6 g carbon combines with sulphur to form CS<sub>2</sub>

according to the reaction



Ans

1. 22 KJ

2. 32 KJ

3. 46 KJ

4. 11 KJ

Question Type : MCQ

Question ID : 37135116343

Option 1 ID : 37135165370

Option 2 ID : 37135165371

Option 3 ID : 37135165372

Option 4 ID : 37135165369

Status : Answered

Chosen Option : 2

Q.29 The volume of dihydrogen required for complete hydrogenation of  $0.5 \text{ dm}^3$  of ethene at S.T.P. is

Ans

1.  $1.0 \text{ dm}^3$

2.  $0.5 \text{ dm}^3$

3.  $0.75 \text{ dm}^3$

4.  $0.25 \text{ dm}^3$

Question Type : MCQ

Question ID : 37135116336

Option 1 ID : 37135165344

Option 2 ID : 37135165342

Option 3 ID : 37135165343

Option 4 ID : 37135165341

Status : Answered

Chosen Option : 4

Q.30 How many electrons flow when a current of 5 amp is passed through a cell for 200 sec ?

Ans

1.  $9.65 \times 10^{21}$

2.  $1.60 \times 10^{21}$

3.  $3.12 \times 10^{21}$

4.  $6.24 \times 10^{21}$

Question Type : MCQ

Question ID : 37135116313

Option 1 ID : 37135165252

Option 2 ID : 37135165249

Option 3 ID : 37135165250

Option 4 ID : 37135165251

Status : Answered

Chosen Option : 2

Q.31 Which of the following is an example of hydrophobic sol ?

Ans

- 1. Rubber in benzene
- 2. Cellulose acetate in acetone
- 3. Metal sulphide
- 4. Starch in water

Question Type : MCQ

Question ID : 37135116319

Option 1 ID : 37135165276

Option 2 ID : 37135165273

Option 3 ID : 37135165275

Option 4 ID : 37135165274

Status : Answered

Chosen Option : 4

Q.32 What is IUPAC name of acrolein ?

Ans

- 1. Prop-2-enal
- 2. 2-methyl but-2-enal
- 3. 3-methyl but-2-enal
- 4. But-2-enal

Question Type : MCQ

Question ID : 37135116346

Option 1 ID : 37135165381

Option 2 ID : 37135165383

Option 3 ID : 37135165384

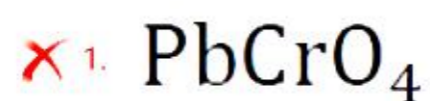
Option 4 ID : 37135165382

Status : Answered

Chosen Option : 3

Q.33 What is the formula of pyrolusite ore ?

Ans



Question Type : MCQ

Question ID : 37135116332

Option 1 ID : 37135165327

Option 2 ID : 37135165328

Option 3 ID : 37135165326

Option 4 ID : 37135165325

Status : Answered

Chosen Option : 1

Q.34 Aluminium crystallises in a face centred cubic structure, its atomic radius is 125 pm. What is the edge length of unit cell ?

Ans

1. 280 pm

2. 353.5 pm

3. 335.5 pm

4. 288.6 pm

Question Type : MCQ

Question ID : 37135116333

Option 1 ID : 37135165329

Option 2 ID : 37135165332

Option 3 ID : 37135165331

Option 4 ID : 37135165330

Status : Answered

Chosen Option : 2

Q.35 Which of the following elements exhibits oxidation states other than +3 ?

Ans

✓ 1. Ce

✗ 2. Gd

✗ 3. Lu

✗ 4. La

Question Type : MCQ

Question ID : 37135116338

Option 1 ID : 37135165349

Option 2 ID : 37135165351

Option 3 ID : 37135165352

Option 4 ID : 37135165350

Status : Answered

Chosen Option : 1

Q.36 The IUPAC name of isobutyl bromide is

Ans

✗ 1. 2-methyl-1-bromo propane

✓ 2. 1-bromo-2-methyl propane

✗ 3. 2-bromo-2-methyl propane

✗ 4. 2-bromo-1-methyl propane

Question Type : MCQ

Question ID : 37135116310

Option 1 ID : 37135165238

Option 2 ID : 37135165239

Option 3 ID : 37135165240

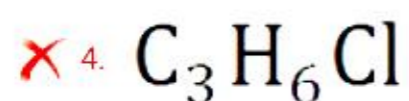
Option 4 ID : 37135165237

Status : Answered

Chosen Option : 2

Q.37 What is molecular formula of allyl chloride ?

Ans



Question Type : MCQ

Question ID : 37135116321

Option 1 ID : 37135165284

Option 2 ID : 37135165282

Option 3 ID : 37135165281

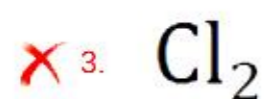
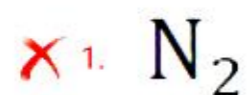
Option 4 ID : 37135165283

Status : Answered

Chosen Option : 4

Q.38 Which of the following molecule does not obey octet rule ?

Ans



Question Type : MCQ

Question ID : 37135116342

Option 1 ID : 37135165368

Option 2 ID : 37135165367

Option 3 ID : 37135165365

Option 4 ID : 37135165366

Status : Answered

Chosen Option : 4

Q.39 Which among the following oxides is amphoteric in nature ?

Ans

1.  $\text{Cl}_2\text{O}_7$

2.  $\text{CaO}$

3.  $\text{B}_2\text{O}_3$

4.  $\text{SnO}$

Question Type : MCQ

Question ID : 37135116325

Option 1 ID : 37135165300

Option 2 ID : 37135165298

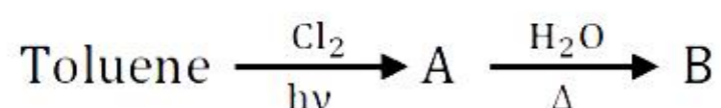
Option 3 ID : 37135165299

Option 4 ID : 37135165297

Status : Answered

Chosen Option : 3

Q.40 Identify 'A' and 'B' respectively in following reaction



Ans

1.

Benzoyl chloride and benzoic acid

2.

Benzoyl chloride and benzaldehyde

3.

Benzyl chloride and benzoic acid

4.

Benzyl chloride and benzaldehyde

Question Type : MCQ

Question ID : 37135116339

Option 1 ID : 37135165356

Option 2 ID : 37135165353

Option 3 ID : 37135165354

Option 4 ID : 37135165355

Status : Marked For Review

Chosen Option : 2



Q.41 The reaction  $\text{N}_2\text{O}_5 \longrightarrow 2\text{NO}_2 + \frac{1}{2} \text{O}_2$  is first order in  $\text{N}_2\text{O}_5$  having rate constant  $6.2 \times 10^{-4} \text{s}^{-1}$ . What is the value of rate of reaction when concentration of  $\text{N}_2\text{O}_5$  is  $1.25 \text{ mol L}^{-1}$  ?

Ans

- ✓ 1.  $7.75 \times 10^{-4} \text{ mol L}^{-1} \text{ s}^{-1}$
- ✗ 2.  $8.15 \times 10^{-4} \text{ mol L}^{-1} \text{ s}^{-1}$
- ✗ 3.  $4.96 \times 10^{-4} \text{ mol L}^{-1} \text{ s}^{-1}$
- ✗ 4.  $2.01 \times 10^{-4} \text{ mol L}^{-1} \text{ s}^{-1}$

Question Type : MCQ

Question ID : 37135116341

Option 1 ID : 37135165363

Option 2 ID : 37135165364

Option 3 ID : 37135165362

Option 4 ID : 37135165361

Status : Answered

Chosen Option : 2

Q.42 Which of the following properties is of thermoplastic polymer ?

Ans

✗ 1. These can't be recycled.

✓ 2.

These are either linear or branched chain polymers.

✗ 3. These can't be remoulded.

✗ 4.

These do not become soft on heating.

Question Type : MCQ

Question ID : 37135116304

Option 1 ID : 37135165216

Option 2 ID : 37135165214

Option 3 ID : 37135165215

Option 4 ID : 37135165213

Status : Answered

Chosen Option : 2

Q.43 The molecular mass of an organic monobasic acid is 129 and value of  $n$  is 2, what is empirical formula mass of compound ?

Ans

1. 158.0

2. 193.5

3. 64.5

4. 258

Question Type : MCQ

Question ID : 37135116320

Option 1 ID : 37135165280

Option 2 ID : 37135165279

Option 3 ID : 37135165278

Option 4 ID : 37135165277

Status : Answered

Chosen Option : 1

Q.44 What is the value of  $K_f$  if 30 g urea (molar mass 60) dissolved in  $0.5 \text{ dm}^3$  of water decreases freezing point by  $0.15^\circ \text{C}$  ?

Ans

1.  $0.15 \text{ K kg mol}^{-1}$

2.  $0.030 \text{ K kg mol}^{-1}$

3.  $0.30 \text{ K kg mol}^{-1}$

4.  $0.015 \text{ K kg mol}^{-1}$

Question Type : MCQ

Question ID : 37135116345

Option 1 ID : 37135165378

Option 2 ID : 37135165380

Option 3 ID : 37135165379

Option 4 ID : 37135165377

Status : Answered

Chosen Option : 2

Q.45 An aqueous solution of sodium nitrite on boiling with  $\alpha$  - chlorosodium propionate gives

Ans

1. 1-Nitropropane

2. Nitroethane

3. 2-Nitropropane

4. Nitromethane

Question Type : MCQ

Question ID : 37135116302

Option 1 ID : 37135165207

Option 2 ID : 37135165206

Option 3 ID : 37135165208

Option 4 ID : 37135165205

Status : Answered

Chosen Option : 3

Q.46 What is the molality of a solution containing 300 mg of urea (molar mass 60) dissolved in 30 g of water ?

Ans

1. 0.133 m

2. 0.825 m

3. 0.498 m

4. 0.166 m

Question Type : MCQ

Question ID : 37135116306

Option 1 ID : 37135165221

Option 2 ID : 37135165224

Option 3 ID : 37135165223

Option 4 ID : 37135165222

Status : Answered

Chosen Option : 3

Q.47 Identify the number of oxygen atoms present in saccharic acid ?

Ans

✓ 1. 8

✗ 2. 12

✗ 3. 4

✗ 4. 6

Question Type : MCQ

Question ID : 37135116315

Option 1 ID : 37135165258

Option 2 ID : 37135165260

Option 3 ID : 37135165257

Option 4 ID : 37135165259

Status : Answered

Chosen Option : 2

Q.48 What is the approximate ratio of roasted ore, coke and lime stone respectively in the charge to be added into blast furnace for extraction of iron ?

Ans

✗ 1. 5 : 12 : 3

✗ 2. 12 : 3 : 5

✓ 3. 12 : 5 : 3

✗ 4. 5 : 3 : 12

Question Type : MCQ

Question ID : 37135116329

Option 1 ID : 37135165315

Option 2 ID : 37135165314

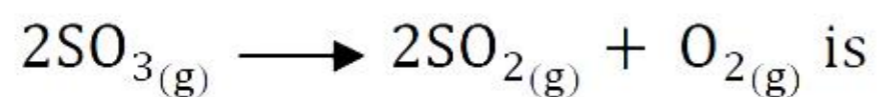
Option 3 ID : 37135165313

Option 4 ID : 37135165316

Status : Answered

Chosen Option : 2

Q.49 Relation between  $\Delta H$  and  $\Delta U$  for the reaction



Ans

1.  $\Delta H - \Delta U = 2RT$

2.  $\Delta H - \Delta U = RT$

3.  $\Delta H + \Delta U = -RT$

4.  $\Delta H + \Delta U = RT$

Question Type : MCQ

Question ID : 37135116309

Option 1 ID : 37135165236

Option 2 ID : 37135165233

Option 3 ID : 37135165235

Option 4 ID : 37135165234

Status : Answered

Chosen Option : 2

Q.50 At what new pressure 100 mL of a gas at pressure of 720 mm will occupy volume of 84 mL keeping temperature constant ?

Ans

1. 857.14 mm

2. 712.14 mm

3. 816.60 mm

4. 604.82 mm

Question Type : MCQ

Question ID : 37135116326

Option 1 ID : 37135165304

Option 2 ID : 37135165302

Option 3 ID : 37135165303

Option 4 ID : 37135165301

Status : Answered

Chosen Option : 2

Q.1

$$\int \left[ \log(1 + \cos x) - x \tan\left(\frac{x}{2}\right) \right] dx =$$

Ans

✗ 1.  $x \log|x| + c$

✗ 2.  $x \log|1 + \sin x| + c$

✗ 3.  $x \log\left|\tan\frac{x}{2}\right| + c$

✓ 4.  $x \log|1 + \cos x| + c$

Question Type : MCQ

Question ID : 37135116395

Option 1 ID : 37135165577

Option 2 ID : 37135165580

Option 3 ID : 37135165578

Option 4 ID : 37135165579

Status : Answered

Chosen Option : 2

Q.2 If the population grows at the rate 5% per year, then the time taken for the population to become double is (Given  $\log 2 = 0.6912$ )

Ans

✗ 1. 13.8275 years

✗ 2. 13.624 years

✗ 3. 13.725 years

✓ 4. 13.8240 years

Question Type : MCQ

Question ID : 37135116354

Option 1 ID : 37135165416

Option 2 ID : 37135165413

Option 3 ID : 37135165414

Option 4 ID : 37135165415

Status : Answered

Chosen Option : 4

Q.3 The area bounded by the circle  $x^2 + y^2 = 16$  and lines  $x = 0$  and  $x = 2$  is

Ans

✓ 1.  $\left[4\sqrt{3} + \frac{8\pi}{3}\right]$  sq. units

✗ 2.  $\frac{1}{2}\left[4\sqrt{3} + \frac{8\pi}{3}\right]$  sq. units

✗ 3.  $\left[4\sqrt{3} - \frac{8\pi}{3}\right]$  sq. units

✗ 4.  $\frac{1}{2}\left[4\sqrt{3} - \frac{8\pi}{3}\right]$  sq. units

Question Type : MCQ

Question ID : 37135116392

Option 1 ID : 37135165566

Option 2 ID : 37135165565

Option 3 ID : 37135165567

Option 4 ID : 37135165568

Status : Answered

Chosen Option : 1



Q.4

$$\int_0^{\pi} \frac{x \cos x \cdot \sin x}{\cos^3 x + \cos x} dx =$$

Ans

1.  $\frac{\pi}{4}$

2.  $\frac{\pi^2}{4}$

3.  $\frac{\pi}{8}$

4.  $\frac{\pi^2}{8}$

Question Type : MCQ

Question ID : 37135116385

Option 1 ID : 37135165538

Option 2 ID : 37135165537

Option 3 ID : 37135165540

Option 4 ID : 37135165539

Status : Answered

Chosen Option : 2

Q.5 Given  $A = \{1, 2, 3, 4, 5\}$ ,  $B = \{1, 4, 5\}$ . If  $R$  is a relation from  $A$  to  $B$  such that  $(x, y) \in R$  with  $x > y$ , then range of  $R$  is

Ans

✓ 1.  $\{1, 4\}$

✗ 2.  $\{4, 5\}$

✗ 3.  $\{1, 4, 5\}$

✗ 4.  $\{2, 4\}$

Question Type : MCQ

Question ID : 37135116353

Option 1 ID : 37135165410

Option 2 ID : 37135165409

Option 3 ID : 37135165411

Option 4 ID : 37135165412

Status : Answered

Chosen Option : 3

Q.6 The equation of a plane passing through the intersection of two planes  
 $x + 2y - 3z + 2 = 0$  and  $6x + y + z + 1 = 0$  and parallel to the line  
 $x - 1 = y + 2 = 7 - z$  is

Ans

✗ 1.  $5x - y + 4z + 1 = 0$

✗ 2.

$5x + y + 4z + 1 = 0$

✓ 3.  $5x - y + 4z = 1$

✗ 4.  $5x + y + 4z = 1$

Question Type : MCQ

Question ID : 37135116373

Option 1 ID : 37135165490

Option 2 ID : 37135165489

Option 3 ID : 37135165491

Option 4 ID : 37135165492

Status : Answered

Chosen Option : 1

Q.7

The value of  $x$  such that the matrix  $\begin{bmatrix} x & 2 & 3 \\ 4 & 5 & 6 \\ 2 & 3 & 5 \end{bmatrix}$  is not invertible is

Ans

1.  $\frac{-10}{7}$

2.  $\frac{7}{10}$

3.  $\frac{-7}{10}$

4.  $\frac{10}{7}$

Question Type : MCQ

Question ID : 37135116357

Option 1 ID : 37135165427

Option 2 ID : 37135165426

Option 3 ID : 37135165425

Option 4 ID : 37135165428

Status : Answered

Chosen Option : 4

Q.8

If  $A = \begin{bmatrix} 0 & 0 & -1 \\ 0 & -1 & 0 \\ -1 & 0 & 0 \end{bmatrix}$ , then

Ans

✗ 1.  $A$  is not invertible

✓ 2.  $A = A^{-1}$

✗ 3.  $A^{-1} = 2A$

✗ 4.  $A^{-1} = I$

Question Type : MCQ

Question ID : 37135116369

Option 1 ID : 37135165474

Option 2 ID : 37135165476

Option 3 ID : 37135165473

Option 4 ID : 37135165475

Status : Answered


Chosen Option : 2

Q.9

$$\int \frac{\sin x}{\sin \left(x - \frac{\pi}{4}\right)} dx =$$

Ans  1.

$$\frac{1}{\sqrt{2}} \left[ x + \log \left| \sin \left( x - \frac{\pi}{4} \right) \right| \right] + c$$

 2.  $x + \log \left| \sin \left( x - \frac{\pi}{4} \right) \right| + c$

 3.  $x - \log \left| \sin \left( x - \frac{\pi}{4} \right) \right| + c$

 4.

$$\frac{1}{\sqrt{2}} \left[ x - \log \left| \sin \left( x - \frac{\pi}{4} \right) \right| \right] + c$$

Question Type : MCQ

Question ID : 37135116386

Option 1 ID : 37135165544

Option 2 ID : 37135165543

Option 3 ID : 37135165541

Option 4 ID : 37135165542

Status : Answered

Chosen Option : 1

Q.10

If  $(\sim p \wedge q) \rightarrow r$  is false then the truth values of  $p, q, r$  are respectively

Ans

✓ 1. F, T, F

✗ 2. F, T, T

✗ 3. T, T, F

✗ 4. F, F, T

Question Type : MCQ

Question ID : 37135116381

Option 1 ID : 37135165524

Option 2 ID : 37135165522

Option 3 ID : 37135165521

Option 4 ID : 37135165523

Status : Answered

Chosen Option : 1

Q.11

In a triangle ABC with usual notations, if  $\tan A, \tan B, \tan C$  are in H.P., then  $a^2, b^2, c^2$

are in

Ans

✓ 1. A. P.

✗ 2. Not in A. P.

✗ 3. H. P

✗ 4. G. P.

Question Type : MCQ

Question ID : 37135116358

Option 1 ID : 37135165429

Option 2 ID : 37135165432

Option 3 ID : 37135165431

Option 4 ID : 37135165430

Status : Answered

Chosen Option : 1



Q.12 If the displacement of a particle at a point is given by  $s = 3t^2 - 12t + 14$ , then the displacement of the particle when its velocity becomes zero is

Ans

1. 14 units

2. 4 units

3. 0 units

4. 2 units

Question Type : MCQ

Question ID : 37135116372

Option 1 ID : 37135165486

Option 2 ID : 37135165488

Option 3 ID : 37135165485

Option 4 ID : 37135165487

Status : Answered

Chosen Option : 3



Q.13 The joint equation of a pair of lines passing through (2, 3) and parallel to the lines

$$x^2 - y^2 = 0 \text{ is}$$

Ans  1.

$$x^2 - y^2 - 4x + 6y - 5 = 0$$

2.  $x^2 - y^2 - 4x + 6y = 0$

3.

$$x^2 - y^2 - 4x + 6y + 17 = 0$$

4.  $x^2 - y^2 - 4x + 6y + 2 = 0$

Question Type : MCQ

Question ID : 37135116390

Option 1 ID : 37135165557

Option 2 ID : 37135165559

Option 3 ID : 37135165558

Option 4 ID : 37135165560

Status : Answered

Chosen Option : 1

Q.14

If  $y = e^{\sin(\operatorname{cosec}^{-1}x)}$ , then  $\frac{dy}{dx} =$

Ans

1.  $\frac{e^x}{x^2}$

2.  $-\frac{1}{x^2} e^x$

3. 0

4.  $e^{\cos(\operatorname{cosec}^{-1}x)}$

Question Type : MCQ

Question ID : 37135116378

Option 1 ID : 37135165510

Option 2 ID : 37135165511

Option 3 ID : 37135165512

Option 4 ID : 37135165509

Status : Answered

Chosen Option : 2

Q.15 The approximate value of  $\log_{10} 99$  is (Given  $\log_{10} e = 0.4343$ )

Ans

1. 1.9657

2. 1.9857

3. 1.9957

4. 1.9757

Question Type : MCQ

Question ID : 37135116375

Option 1 ID : 37135165497

Option 2 ID : 37135165499

Option 3 ID : 37135165500

Option 4 ID : 37135165498

Status : Answered

Chosen Option : 1

Q.16

If the function  $f(x) = \frac{\log 10 + \log(0.1+2x)}{2x}$  if  $x \neq 0$   
 $= k$  if  $x = 0$

is continuous at  $x = 0$ , then  $k + 2 =$

Ans

1. 2

2. 10

3. 12

4. 11

Question Type : MCQ

Question ID : 37135116396

Option 1 ID : 37135165582

Option 2 ID : 37135165583

Option 3 ID : 37135165584

Option 4 ID : 37135165581

Status : Answered

Chosen Option : 3

Q.17

$y = mx + \frac{2}{m}$  is the general solution of

Ans

1.  $y \left( \frac{dy}{dx} \right)^2 = x \left( \frac{dy}{dx} \right) + 2$

2.  $y = x \frac{dy}{dx} + 2$

3.  $y \left( \frac{dy}{dx} \right) = x \left( \frac{dy}{dx} \right)^2 + 2$

4.  $y \left( \frac{dy}{dx} \right) = x + 2$

Question Type : MCQ

Question ID : 37135116391

Option 1 ID : 37135165563

Option 2 ID : 37135165562

Option 3 ID : 37135165561

Option 4 ID : 37135165564

Status : Answered

Chosen Option : 3

Q.18 In a triangle ABC with usual notations,  $\frac{\cos A - \cos C}{a - c} + \frac{\cos B}{b} =$

Ans

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

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

3.  $\frac{-1}{b}$

4.  $\frac{-2}{b}$

Question Type : MCQ

Question ID : 37135116363

Option 1 ID : 37135165451

Option 2 ID : 37135165450

Option 3 ID : 37135165449

Option 4 ID : 37135165452

Status : Answered

Chosen Option : 4

Q.19

The maximum value of  $Z = 10x + 25y$  subject to  $0 \leq x \leq 3$ ,  $0 \leq y \leq 3$ ,

$x + y \leq 5$ ,  $x \geq 0$ ,  $y \geq 0$  is

Ans

1. 110

2. 100

3. 120

4. 95

Question Type : MCQ

Question ID : 37135116368

Option 1 ID : 37135165469

Option 2 ID : 37135165471

Option 3 ID : 37135165470

Option 4 ID : 37135165472

Status : Answered

Chosen Option : 4

Q.20 The equation of a line passing through the point of intersection of the lines  $x + 2y + 8 = 0$  and  $3x - y + 4 = 0$  and having  $x$  and  $y$  intercept zero is

Ans

✗<sup>1.</sup>  $4x - 5y = 0$

✓<sup>2.</sup>  $5x - 4y = 0$

✗<sup>3.</sup>  $5x + 4y = 0$

✗<sup>4.</sup>  $4x + 5y = 0$

Question Type : MCQ

Question ID : 37135116388

Option 1 ID : 37135165551

Option 2 ID : 37135165549

Option 3 ID : 37135165550

Option 4 ID : 37135165552

Status : Answered

Chosen Option : 2



Q.21

If A (3, 2, -1) and B (1, 4, 3), then equation of the plane which bisects segment

AB perpendicularly is

Ans

1.  $x + y + 2z + 3 = 0$

2.  $x - y + 2z - 3 = 0$

3.  $x + y - 2z - 3 = 0$

4.  $x - y - 2z + 3 = 0$

Question Type : MCQ

Question ID : 37135116384

Option 1 ID : 37135165533

Option 2 ID : 37135165535

Option 3 ID : 37135165536

Option 4 ID : 37135165534

Status : Answered

Chosen Option : 3

Q.22 ABCD is a parallelogram, P is the mid-point of AB. If R is the point of intersection of AC and DP, then R divides AC internally in the ratio

Ans

1. 3:1

2. 2:1

3. 1:2

4. 2:3

Question Type : MCQ

Question ID : 37135116393

Option 1 ID : 37135165572

Option 2 ID : 37135165571

Option 3 ID : 37135165569

Option 4 ID : 37135165570

Status : Answered

Chosen Option : 3

Q.23 Two dice are thrown together. The probability that sum of the numbers is divisible by 2 or 3 is

Ans

1.  $\frac{1}{6}$

2.  $\frac{3}{4}$

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

4.  $\frac{2}{3}$

Question Type : MCQ

Question ID : 37135116351

Option 1 ID : 37135165403

Option 2 ID : 37135165404

Option 3 ID : 37135165402

Option 4 ID : 37135165401

Status : Answered

Chosen Option : 2

Q.24

$$\frac{1^2}{2} + \frac{1^2+2^2}{3} + \frac{1^2+2^2+3^2}{4} + \frac{1^2+2^2+3^2+4^2}{5} + \dots \dots \dots \text{upto 8 terms} =$$

Ans

1. 76

2. 74

3. 78

4. 72

Question Type : MCQ

Question ID : 37135116364

Option 1 ID : 37135165455

Option 2 ID : 37135165454

Option 3 ID : 37135165456

Option 4 ID : 37135165453

Status : Answered

Chosen Option : 2

Q.25

$$\int_0^{\frac{\pi}{2}} \frac{dx}{1 + \cos x} =$$

Ans

1.  $-2$

2.  $2$

3.  $1$

4.  $-1$

Question Type : MCQ

Question ID : 37135116366

Option 1 ID : 37135165463

Option 2 ID : 37135165462

Option 3 ID : 37135165464

Option 4 ID : 37135165461

Status : Answered

Chosen Option : 3

Q.26

Which of the following have the same value

(a)  $\sin 120^\circ$

(b)  $\cos 930^\circ$

(c)  $\tan 840^\circ$

(d)  $\cot (-1110^\circ)$

Ans

1. only (a) and (b)

2. All (a), (b), (c), (d)

3. only (a) and (c)

4. only (c) and (d)

Question Type : MCQ

Question ID : 37135116374

Option 1 ID : 37135165496

Option 2 ID : 37135165493

Option 3 ID : 37135165494

Option 4 ID : 37135165495

Status : Answered

Chosen Option : 3

Q.27

$$\int_{-1}^1 \left[ \sqrt{1+x+x^2} - \sqrt{1-x+x^2} \right] dx =$$

Ans

1. 2

2. 5

3. 1

4. 0

Question Type : MCQ

Question ID : 37135116371

Option 1 ID : 37135165482

Option 2 ID : 37135165483

Option 3 ID : 37135165481

Option 4 ID : 37135165484

Status : Answered

Chosen Option : 1

Q.28

$$\int \left[ \frac{1 - \log x}{1 + (\log x)^2} \right]^2 dx = =$$

Ans

1.  $\frac{1}{1+(\log x)^2} + c$

2.  $\frac{x}{1+(\log x)^2} + c$

3.  $\frac{1}{1+\log x} + c$

4.  $\frac{x}{1+\log x} + c$

Question Type : MCQ

Question ID : 37135116389

Option 1 ID : 37135165556

Option 2 ID : 37135165554

Option 3 ID : 37135165555

Option 4 ID : 37135165553

Status : Answered

Chosen Option : 2



Q.29

If  $f(x) = e^x g(x)$  ,  $g(0) = 4$  ,  $g'(0) = 2$  , then  $f'(0) =$

Ans

1. 4

2. 6

3. 1

4. 2

Question Type : **MCQ**

Question ID : **37135116398**

Option 1 ID : **37135165592**

Option 2 ID : **37135165591**

Option 3 ID : **37135165589**

Option 4 ID : **37135165590**

Status : **Answered**

Chosen Option : **2**

Q.30 The equation of a circle passing through origin and making x-intercept 3 and y-intercept -5 is

Ans

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

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

3.

$x^2 + y^2 - 3x + 5y = 0$

4.  $x^2 + y^2 - 3x - 5y = 0$

Question Type : MCQ

Question ID : 37135116359

Option 1 ID : 37135165434

Option 2 ID : 37135165436

Option 3 ID : 37135165433

Option 4 ID : 37135165435

Status : Answered

Chosen Option : 2

Q.31

The co-ordinates of the foot of the perpendicular from the point  $(0, 2, 3)$  on the line

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

Ans

✗ 1.  $(-2, -3, 1)$

✓ 2.  $(2, 3, -1)$

✗ 3.  $(2, 3, 1)$

✗ 4.  $(-2, -3, -1)$

Question Type : MCQ

Question ID : 37135116394

Option 1 ID : 37135165574

Option 2 ID : 37135165575

Option 3 ID : 37135165573

Option 4 ID : 37135165576

Status : Answered

Chosen Option : 2

Q.32 The rate of decay of mass of certain substance at time  $t$  is proportional to the mass at that instant. The time during which the original mass of  $m_0$  gram will be left to  $m_1$  gram is  $(k$  is constant of proportionality)

Ans

✗ 1.  $\frac{1}{k} \log \left( \frac{m_1}{m_0} \right)$

✗ 2.  $k \log \left( \frac{m_0}{m_1} \right)$

✗ 3.  $k \log \left( \frac{m_1}{m_0} \right)$

✓ 4.  $\frac{1}{k} \log \left( \frac{m_0}{m_1} \right)$

Question Type : MCQ

Question ID : 37135116370

Option 1 ID : 37135165480

Option 2 ID : 37135165477

Option 3 ID : 37135165478

Option 4 ID : 37135165479

Status : Answered

Chosen Option : 4

Q.33

If the error involved in making a certain measurement is continuous random variable

$X$  with probability density function  $f(x) = k(4 - x^2)$  if  $-2 \leq x \leq 2$

$= 0$  , otherwise

then ,  $P[-1 < X < 1] =$

Ans

1.  $\frac{13}{16}$

2.  $\frac{1}{2}$

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

4.  $\frac{11}{16}$

Question Type : MCQ

Question ID : 37135116352

Option 1 ID : 37135165406

Option 2 ID : 37135165407

Option 3 ID : 37135165408

Option 4 ID : 37135165405

Status : Answered

Chosen Option : 1

Q.34

The equation of line passing through the points  $(3, 4, -7)$  and  $(6, -1, 1)$  is

Ans

✓ 1.  $\frac{x-3}{3} = \frac{y-4}{-5} = \frac{z+7}{8}$

✗ 2.  $\frac{x-3}{3} = \frac{y-4}{5} = \frac{z+7}{8}$

✗ 3.  $\frac{x-3}{-3} = \frac{y-4}{-5} = \frac{z+7}{8}$

✗ 4.  $\frac{x-3}{3} = \frac{y-4}{-5} = \frac{z-7}{8}$

Question Type : MCQ

Question ID : 37135116400

Option 1 ID : 37135165599

Option 2 ID : 37135165597

Option 3 ID : 37135165600

Option 4 ID : 37135165598

Status : Answered

Chosen Option : 1

Q.35 If  $[\bar{a} \ \bar{b} \ \bar{c}] = 3$ , then the volume of the parallelepiped with  $2\bar{a} + \bar{b}$ ,  $2\bar{b} + \bar{c}$ ,  $2\bar{c} + \bar{a}$  as coterminus edges is

Ans

1. 22 cubic units

2. 15 cubic units

3. 27 cubic units

4. 25 cubic units

Question Type : MCQ

Question ID : 37135116387

Option 1 ID : 37135165546

Option 2 ID : 37135165545

Option 3 ID : 37135165548

Option 4 ID : 37135165547

Status : Answered

Chosen Option : 4

Q.36 If  $f(x) = \frac{3x+4}{5x-7}$ ,  $x \neq \frac{7}{5}$

$g(x) = \frac{7x+4}{5x-3}$ ,  $x \neq \frac{3}{5}$  then

$(g \circ f)(3) =$

Ans

1.  $-3$

2.  $-\frac{1}{3}$

3.  $3$

4.  $\frac{1}{3}$

Question Type : MCQ

Question ID : 37135116397

Option 1 ID : 37135165585

Option 2 ID : 37135165588

Option 3 ID : 37135165586

Option 4 ID : 37135165587

Status : Answered

Chosen Option : 3



Q.37

If  $\frac{x}{x-y} = \log\left(\frac{a}{x-y}\right)$ , then  $\frac{dy}{dx} =$

Ans

1.  $2 + \frac{1}{y}$

2.  $\frac{2y-x}{y}$

3.  $\frac{2x-y}{x}$

4.  $\frac{x-2y}{y}$

Question Type : MCQ

Question ID : 37135116365

Option 1 ID : 37135165457

Option 2 ID : 37135165459

Option 3 ID : 37135165458

Option 4 ID : 37135165460

Status : Answered

Chosen Option : 4

Q.38 If one of the lines given by  $kx^2 + xy - y^2 = 0$  bisects the angle between the co-ordinate axes, then values of  $k$  are

Ans

1. 1, 2

2. 1, 3

3. 0, 2

4. -2, 2

Question Type : MCQ

Question ID : 37135116361

Option 1 ID : 37135165442

Option 2 ID : 37135165444

Option 3 ID : 37135165441

Option 4 ID : 37135165443

Status : Answered

Chosen Option : 1

Q.39

The particular solution of the differential equation  $(y + x \cdot \frac{dy}{dx}) \cdot \sin xy = \cos x$

at  $x = 0$  is

Ans

✓<sup>1.</sup>  $\sin x + \cos xy = 1$

✗<sup>2.</sup>  $\cos x - \sin xy = 1$

✗<sup>3.</sup>  $\sin x - \cos xy = 1$

✗<sup>4.</sup>  $\cos x + \sin xy = 1$

Question Type : MCQ

Question ID : 37135116377

Option 1 ID : 37135165507

Option 2 ID : 37135165506

Option 3 ID : 37135165508

Option 4 ID : 37135165505

Status : Answered

Chosen Option : 3

Q.40 If  $A(0, 4, 0)$ ,  $B(0, 0, 3)$  and  $C(0, 4, 3)$  are the vertices of  $\Delta ABC$ , then its incentre is

Ans

1.  $(2, 0, 3)$

2.  $(3, 0, 2)$

3.  $(0, 3, 2)$

4.  $(0, 2, 3)$

Question Type : MCQ

Question ID : 37135116383

Option 1 ID : 37135165532

Option 2 ID : 37135165530

Option 3 ID : 37135165531

Option 4 ID : 37135165529

Status : Answered

Chosen Option : 4

Q.41 If the angle between the lines whose direction ratios are  $4, -3, 5$  and  $3, 4, k$

is  $\frac{\pi}{3}$ , then  $k =$

Ans

1.  $\pm 7$

2.  $\pm 10$

3.  $\pm 5$

4.  $\pm 6$

Question Type : MCQ

Question ID : 37135116399

Option 1 ID : 37135165595

Option 2 ID : 37135165596

Option 3 ID : 37135165593

Option 4 ID : 37135165594

Status : Answered

Chosen Option : 3

Q.42

If the symbolic form of the switching circuit is  $[\sim p \vee (p \wedge \sim q)] \vee q$ , then the current flows through the circuit only if

Ans

✓ 1.

irrespective of status of the switches

✗ 2.

one switch should be open and other should be closed

✗ 3.

both switches should be closed

✗ 4. both switches should be open

Question Type : MCQ

Question ID : 37135116360

Option 1 ID : 37135165440

Option 2 ID : 37135165439

Option 3 ID : 37135165437

Option 4 ID : 37135165438

Status : Answered

Chosen Option : 2

Q.43 The probability distribution of a discrete r. v.  $X$  is

$X = x$	0	1	2	3	4
$P(X = x)$	$k$	$2k$	$4k$	$2k$	$k$

then value of  $P(X \leq 2)$  is

Ans

1.  $\frac{1}{10}$

2.  $\frac{7}{10}$

3.  $\frac{3}{10}$

4.  $\frac{9}{10}$

Question Type : MCQ

Question ID : 37135116355

Option 1 ID : 37135165418

Option 2 ID : 37135165417

Option 3 ID : 37135165419

Option 4 ID : 37135165420

Status : Answered

Chosen Option : 2

Q.44

If  $X \sim B(4, p)$  and  $2P(X=3) = 3P(X=2)$  then value of  $p$  is

Ans

1.  $\frac{9}{13}$

2.  $\frac{4}{13}$

3.  $\frac{1}{13}$

4.  $\frac{12}{13}$

Question Type : MCQ

Question ID : 37135116362

Option 1 ID : 37135165446

Option 2 ID : 37135165445

Option 3 ID : 37135165447

Option 4 ID : 37135165448

Status : Answered

Chosen Option : 2



Q.45 If  $\tan\theta + \sin\theta = a$  and  $\tan\theta - \sin\theta = b$ , then the values of  $\cot\theta$  and  $\operatorname{cosec}\theta$  are respectively

Ans

1.  $\frac{1}{a+b}$ ,  $\frac{1}{a-b}$

2.  $\frac{2}{a+b}$ ,  $\frac{2}{a-b}$

3.  $\frac{2}{a-b}$ ,  $\frac{2}{a+b}$

4.  $\frac{1}{a-b}$ ,  $\frac{1}{a+b}$

Question Type : MCQ

Question ID : 37135116379

Option 1 ID : 37135165516

Option 2 ID : 37135165513

Option 3 ID : 37135165514

Option 4 ID : 37135165515

Status : Answered

Chosen Option : 2

Q.46 If  $P(\theta)$  lies on the hyperbola  $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$  and  $S$  and  $S'$  are foci of the hyperbola, then  $SP \cdot S'P =$

Ans

1.  $a^2 \tan^2 \theta - b^2 \sec^2 \theta$

2.  $a^2 \tan^2 \theta + b^2 \sec^2 \theta$

3.  $a^2 \sec^2 \theta + b^2 \tan^2 \theta$

4.  $a^2 \sec^2 \theta - b^2 \tan^2 \theta$

Question Type : MCQ

Question ID : 37135116356

Option 1 ID : 37135165423

Option 2 ID : 37135165421

Option 3 ID : 37135165422

Option 4 ID : 37135165424

Status : Answered

Chosen Option : 4

Q.47

$$\frac{\cos 12^\circ - \sin 12^\circ}{\cos 12^\circ + \sin 12^\circ} + \frac{\sin 147^\circ}{\cos 147^\circ} =$$

Ans

1. -2

2. 0

3. -1

4. 1

Question Type : MCQ

Question ID : 37135116367

Option 1 ID : 37135165468

Option 2 ID : 37135165465

Option 3 ID : 37135165467

Option 4 ID : 37135165466

Status : Answered

Chosen Option : 2

Q.48

In  $\Delta ABC$ , if  $\frac{\cos A}{a} = \frac{\cos B}{b} = \frac{\cos C}{c}$  with usual notations, then the triangle is

Ans

1. an isosceles triangle

2. an equilateral triangle

3.

a right angled scalene triangle

4. a scalene triangle

Question Type : MCQ

Question ID : 37135116376

Option 1 ID : 37135165501

Option 2 ID : 37135165502

Option 3 ID : 37135165504

Option 4 ID : 37135165503

Status : Answered

Chosen Option : 2

Q.49

Solution of the differential equation  $\frac{dy}{dx} + 2y = e^{-x}$  is

Ans

✗ 1.  $y e^x = x + c$

✗ 2.  $y e^{2x} = x + c$

✗ 3.  $y e^x = e^{2x} + c$

✓ 4.  $y e^{2x} = e^x + c$

Question Type : MCQ

Question ID : 37135116380

Option 1 ID : 37135165520

Option 2 ID : 37135165519

Option 3 ID : 37135165517

Option 4 ID : 37135165518

Status : Answered

Chosen Option : 4

Q.50

The function  $f(x) = \log x - \frac{2x}{x+2}$  is increasing for all

Ans

1.  $x \in (-\infty, 1)$

2.  $x \in (-1, \infty)$

3.  $x \in (-\infty, 0)$

4.  $x \in (0, \infty)$

Question Type : MCQ

Question ID : 37135116382

Option 1 ID : 37135165528

Option 2 ID : 37135165527

Option 3 ID : 37135165525

Option 4 ID : 37135165526

Status : Answered

Chosen Option : 2