

Q.1

The potential differences that must be applied across the parallel and series combination of 3 identical capacitors is such that the energy stored in them becomes the same. The ratio of potential difference in parallel to series combination is

Ans

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

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

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

4. $\frac{1}{8}$

Question Type : MCQ

Question ID : 37135115525

Option 1 ID : 37135162098

Option 2 ID : 37135162099

Option 3 ID : 37135162097

Option 4 ID : 37135162100

Status : Answered

Chosen Option : 3

Q.2 The unit vector $(a\hat{i} + b\hat{j})$ is perpendicular to $(\hat{i} + \hat{j})$. The value of 'b' is

Ans

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

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

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

4. $-\frac{1}{\sqrt{2}}$

Question Type : MCQ

Question ID : 37135115532

Option 1 ID : 37135162126

Option 2 ID : 37135162125

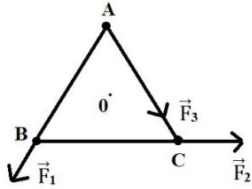
Option 3 ID : 37135162128

Option 4 ID : 37135162127

Status : Answered

Chosen Option : 4

Q.3 Figure shows three forces \vec{F}_1 , \vec{F}_2 and \vec{F}_3 acting along the sides of an equilateral triangle. If the total torque acting at point 'O' (centre of the triangle) is zero then the magnitude of \vec{F}_3 is



Ans

✗ 1.
$$\frac{F_1 - F_2}{2}$$

✗ 2.
$$F_1 - F_2$$

✓ 3.
$$F_1 + F_2$$

✗ 4.
$$\frac{F_1}{F_2}$$

Question Type : MCQ

Question ID : 37135115520

Option 1 ID : 37135162079

Option 2 ID : 37135162078

Option 3 ID : 37135162077

Option 4 ID : 37135162080

Status : Not Answered

Chosen Option : -

Q.4 A pipe open at one end has length 0.8 m. At the open end of the tube a string 0.5m long is vibrating in its 1st overtone and resonates with fundamental frequency of pipe. If tension in the string is 50N, the mass of string is (speed of sound = 320 m/s)

Ans

1. 25 gram

2. 15 gram

3. 20 gram

4. 10 gram

Question Type : MCQ

Question ID : 37135115545

Option 1 ID : 37135162180

Option 2 ID : 37135162178

Option 3 ID : 37135162179

Option 4 ID : 37135162177

Status : Answered

Chosen Option : 4

Q.5 If the dimensions of a physical quantity are given by $[L^a M^b T^c]$ then the physical quantity is

Ans  1.

velocity if $a = -1, b = 0, c = +1$.

 2.

force if $a = -1, b = 1, c = -2$.

 3.

pressure if $a = -1, b = 1, c = -2$.

 4.

acceleration if $a = 1, b = 1, c = -2$.

Question Type : MCQ

Question ID : 37135115502

Option 1 ID : 37135162005

Option 2 ID : 37135162007

Option 3 ID : 37135162008

Option 4 ID : 37135162006

Status : Answered

Chosen Option : 3

Q.6

Two wires 'A' and 'B' of equal lengths are connected in left and right gaps, of meter bridge, respectively. The null point is obtained at 40 cm from left end. Diameters of the wires 'A' and 'B' are in the ratio 3 : 1, the ratio of specific resistance of 'A' to that of 'B' is

Ans

1. 3 : 1

2. 1 : 1

3. 6 : 1

4. 9 : 1

Question Type : MCQ

Question ID : 37135115521

Option 1 ID : 37135162082

Option 2 ID : 37135162081

Option 3 ID : 37135162083

Option 4 ID : 37135162084

Status : Answered

Chosen Option : 3

Q.7 A parallel combination of pure inductor and capacitor is connected across a source of alternating e.m.f. 'e'. The currents flowing through an inductor and capacitor are i_L and i_C respectively. In this parallel resonant circuit, the condition for currents i , i_L and i_C is (i =net r.m.s. current in the circuit)

Ans

✓ 1. $i \doteq 0, i_L = i_C \neq 0$

✗ 2. $i \neq 0, i_L = i_C = 0$

✗ 3. $i \doteq i_L = i_C$

✗ 4. $i \doteq 0, i_L \neq i_C$

Question Type : MCQ

Question ID : 37135115501

Option 1 ID : 37135162003

Option 2 ID : 37135162001

Option 3 ID : 37135162002

Option 4 ID : 37135162004

Status : Answered

Chosen Option : 2

Q.8

The frequency of two tuning forks A and B are 1.5% more and 2.5% less than that of the tuning fork C. When A and B are sounded together, 12 beats are produced in 1 second. The frequency of tuning fork C is

Ans

✗ 1. 200 Hz

✓ 2. 300 Hz

✗ 3. 240 Hz

✗ 4. 360 Hz

Question Type : MCQ

Question ID : 37135115534

Option 1 ID : 37135162133

Option 2 ID : 37135162135

Option 3 ID : 37135162134

Option 4 ID : 37135162136

Status : Answered

Chosen Option : 2

Q.9

A ball of mass 'm' is attached to the free end of an inextensible string of length ' ℓ '. Let 'T' be the tension in the string. The ball is moving in horizontal circular path about the vertical axis. The angular velocity of the ball at any particular instant will be

Ans

✓ 1. $\sqrt{\frac{T}{m\ell}}$

✗ 2. $\sqrt{\frac{T\ell}{m}}$

✗ 3. $\sqrt{\frac{m\ell}{T}}$

✗ 4. $\sqrt{\frac{Tm}{\ell}}$

Question Type : MCQ

Question ID : 37135115530

Option 1 ID : 37135162120

Option 2 ID : 37135162117

Option 3 ID : 37135162119

Option 4 ID : 37135162118

Status : Answered

Chosen Option : 1

Q.10 The maximum velocity of the photoelectron emitted by the metal surface is 'v'. Charge and mass of the photoelectron is denoted by 'e' and 'm' respectively. The stopping potential in volt is

Ans

1. $\frac{v^2}{\left(\frac{m}{e}\right)}$

2. $\frac{v^2}{\left(\frac{e}{m}\right)}$

3. $\frac{v^2}{2\left(\frac{m}{e}\right)}$

4. $\frac{v^2}{2\left(\frac{e}{m}\right)}$

Question Type : MCQ

Question ID : 37135115535

Option 1 ID : 37135162140

Option 2 ID : 37135162137

Option 3 ID : 37135162139

Option 4 ID : 37135162138

Status : Answered

Chosen Option : 4

Q.11

A stationary body explodes into two parts of masses ' M_1 ' and ' M_2 '. They move in opposite directions with velocities ' v_1 ' and ' v_2 '. The ratio of their kinetic energies is

Ans

✓ 1.

$$\left[\frac{M_2}{M_1} \right]$$

✗ 2.

$$\left[\frac{M_2}{M_1} \right]^{\frac{1}{2}}$$

✗ 3.

$$\left[\frac{M_1}{M_2} \right]^2$$

✗ 4.

$$\left[\frac{M_2}{M_1} \right]^2$$

Question Type : MCQ

Question ID : 37135115547

Option 1 ID : 37135162186

Option 2 ID : 37135162188

Option 3 ID : 37135162187

Option 4 ID : 37135162185

Status : Answered

Chosen Option : 1

Q.12 In meter bridge experiment, to minimize an error due to contact resistance,

Ans  1.

use non-uniform meter bridge wire.

 2.

repeat the experiment by interchanging the resistance in gaps.

 3.

increase the current flowing through meter bridge wire.

 4.

changing the value of known resistance in the gap.

Question Type : MCQ

Question ID : 37135115505

Option 1 ID : 37135162017

Option 2 ID : 37135162019

Option 3 ID : 37135162018

Option 4 ID : 37135162020

Status : Answered

Chosen Option : 2

Q.13 Magnetic field at the centre of a circular loop of area 'A' is 'B'. The magnetic moment of the loop will be (μ_0 = permeability of free space)

Ans

✗ 1.
$$\frac{BA^{\frac{3}{2}}}{\mu_0 \pi}$$

✓ 2.
$$\frac{2BA^{\frac{3}{2}}}{\mu_0 \pi^{\frac{1}{2}}}$$

✗ 3.
$$\frac{2BA^2}{\mu_0 \pi}$$

✗ 4.
$$\frac{BA^{\frac{3}{2}}}{\mu_0 \pi^{\frac{1}{2}}}$$

Question Type : MCQ

Question ID : 37135115513

Option 1 ID : 37135162050

Option 2 ID : 37135162052

Option 3 ID : 37135162049

Option 4 ID : 37135162051

Status : Answered

Chosen Option : 2

Q.14 Above the curie temperature the susceptibility of a ferromagnetic substance varies

Ans  1.

directly as the absolute temperature.

 2.

inversely as the absolute temperature.

 3.

inversely as the square root of absolute temperature.

 4.

directly as the square root of absolute temperature.

Question Type : MCQ

Question ID : 37135115531

Option 1 ID : 37135162121

Option 2 ID : 37135162122

Option 3 ID : 37135162123

Option 4 ID : 37135162124

Status : Answered

Chosen Option : 2

Q.15 A solid cylinder of mass 'M' and radius 'R' rolls down a smooth inclined plane about its own axis and reaches the bottom with velocity 'v'. The height of the inclined plane is (g = acceleration due to gravity)

Ans

✓ 1. $\frac{3v^2}{4g}$.

✗ 2. $\frac{4v^2}{5g}$.

✗ 3. $\frac{7v^2}{9g}$.

✗ 4. $\frac{2v^2}{3g}$.

Question Type : MCQ

Question ID : 37135115544

Option 1 ID : 37135162175

Option 2 ID : 37135162174

Option 3 ID : 37135162176

Option 4 ID : 37135162173

Status : Answered

Chosen Option : 1

Q.16

A body is projected vertically upwards from earth's surface with velocity $2v_e$, where v_e is escape velocity from earth's surface. The velocity when body escapes the gravitational pull is

Ans

1. $\sqrt{7} v_e$

2. $\sqrt{3} v_e$

3. $\sqrt{5} v_e$

4. $2 v_e$

Question Type : MCQ

Question ID : 37135115526

Option 1 ID : 37135162104

Option 2 ID : 37135162103

Option 3 ID : 37135162102

Option 4 ID : 37135162101

Status : Answered

Chosen Option : 2

Q.17 Two cars of masses ' m_1 ', and ' m_2 ' are moving in the circles of radii ' r_1 ' and ' r_2 ' respectively. Their angular speeds ' ω_1 ' and ' ω_2 ' are such that they both complete one revolution in the same time ' t '. The ratio of linear speed of ' m_1 ' to the linear speed of ' m_2 ' is

Ans

✓ 1. $r_1 : r_2$

✗ 2. $T_1^2 : T_2^2$

✗ 3. $\omega_1^2 : \omega_2^2$

✗ 4. $m_1 : m_2$

Question Type : MCQ

Question ID : 37135115514

Option 1 ID : 37135162054

Option 2 ID : 37135162055

Option 3 ID : 37135162056

Option 4 ID : 37135162053

Status : Answered

Chosen Option : 1

Q.18

Resultant of two vectors \vec{P} and \vec{Q} is of magnitude R_1 . If direction of \vec{Q} is reversed, the resultant is of magnitude R_2 . The value of $(R_1^2 + R_2^2)$ is $[\cos(\pi - \theta) = -\cos \theta]$

Ans

1. $(P^2 + Q^2)$

2. $2(P^2 + Q^2)$

3. $2(P^2 - Q^2)$

4. $(P^2 - Q^2)$

Question Type : MCQ

Question ID : 37135115522

Option 1 ID : 37135162088

Option 2 ID : 37135162087

Option 3 ID : 37135162085

Option 4 ID : 37135162086

Status : Answered

Chosen Option : 2

Q.19

Choose the correct statement. In conductors

Ans 1.

valence band and conduction band overlap each other.

2.

valence band and conduction band are separated by a large energy gap.

3.

very small number of electrons are available for electrical conduction.

4.

valence band and conduction band are separated by a small energy gap.

Question Type : MCQ

Question ID : 37135115519

Option 1 ID : 37135162073

Option 2 ID : 37135162075

Option 3 ID : 37135162076

Option 4 ID : 37135162074

Status : Answered

Chosen Option : 1

Q.20

Two identical wires are vibrating in unison. If the tension in one of the wires is increased by 2%, five beats are produced per second by the two vibrating wires.

The initial frequency of each wire is ($\sqrt{1.02} \div 1.01$)

Ans

1. 1000 Hz

2. 500 Hz

3. 400 Hz

4. 200 Hz

Question Type : MCQ

Question ID : 37135115528

Option 1 ID : 37135162112

Option 2 ID : 37135162111

Option 3 ID : 37135162110

Option 4 ID : 37135162109

Status : Answered

Chosen Option : 2

Q.21

Electron in Hydrogen atom first jumps from third excited state to second excited state and then from second excited state to first excited state. The ratio of the wavelengths $\lambda_1 : \lambda_2$ emitted in the two cases respectively is

Ans

1. $\frac{7}{5}$

2. $\frac{27}{20}$

3. $\frac{27}{5}$

4. $\frac{20}{7}$

Question Type : MCQ

Question ID : 37135115529

Option 1 ID : 37135162113

Option 2 ID : 37135162114

Option 3 ID : 37135162115

Option 4 ID : 37135162116

Status : Answered

Chosen Option : 4

Q.22 In cyclotron, the time taken by an ion to describe semicircular path in a dee is

Ans  1.

dependent on speed of ion.

 2.

independent of mass of ion.

 3.

independent of speed of ion and radius of circular path.

 4.

dependent on radius of circular path.

Question Type : MCQ

Question ID : 37135115515

Option 1 ID : 37135162057

Option 2 ID : 37135162059

Option 3 ID : 37135162060

Option 4 ID : 37135162058

Status : Answered

Chosen Option : 4

Q.23 Two small drops of mercury each of radius 'R' coalesce to form a large single drop.
The ratio of the total surface energies before and after the change is

Ans

✗ 1. $\sqrt{2} : 1$

✓ 2. $2^{1/3} : 1$

✗ 3. $2 : 1$

✗ 4. $2^{2/3} : 1$

Question Type : MCQ

Question ID : 37135115524

Option 1 ID : 37135162096

Option 2 ID : 37135162093

Option 3 ID : 37135162095

Option 4 ID : 37135162094

Status : Answered

Chosen Option : 2

Q.24 A ray of unpolarised light is incident on the glass surface of refractive index 1.73 at polarizing angle. The angle of refraction will be [Take $\tan 60^\circ = 1.73$]

Ans

1. 45° .

2. 15° .

3. 35° .

4. 30° .

Question Type : MCQ

Question ID : 37135115543

Option 1 ID : 37135162172

Option 2 ID : 37135162169

Option 3 ID : 37135162171

Option 4 ID : 37135162170

Status : Answered

Chosen Option : 4

Q.25

What is the magnifying power of a simple microscope of focal length 5cm, if the image is formed at the distance of distinct vision?

Ans

1. 4

2. 7

3. 6

4. 5

Question Type : MCQ

Question ID : 37135115517

Option 1 ID : 37135162065

Option 2 ID : 37135162068

Option 3 ID : 37135162067

Option 4 ID : 37135162066

Status : Answered

Chosen Option : 3

Q.26 Two rain drops falling through air have radii in the ratio 1 : 2. They will have terminal velocity in the ratio

Ans

1. 1 : 2

2. 4 : 1

3. 1 : 4

4. 2 : 1

Question Type : MCQ

Question ID : 37135115537

Option 1 ID : 37135162148

Option 2 ID : 37135162145

Option 3 ID : 37135162146

Option 4 ID : 37135162147

Status : Answered

Chosen Option : 3

Q.27 Two short bar magnets 'A' and 'B' (having magnetic moments ' M_1 ' and ' M_2 ' respectively) are kept one above the other with their magnetic axis perpendicular to each other. If their resultant at a point on the axis of magnet 'A' is inclined at 45° with the axis of magnet A then the ratio of magnetic moments $\frac{M_2}{M_1}$ is $[\tan 45^\circ = 1]$

Ans

✓ 1. 2 : 1

✗ 2. 2 : 3

✗ 3. 1 : 2

✗ 4. 3 : 2

Question Type : MCQ

Question ID : 37135115507

Option 1 ID : 37135162026

Option 2 ID : 37135162027

Option 3 ID : 37135162025

Option 4 ID : 37135162028

Status : Answered

Chosen Option : 1

Q.28 A heavy mass is attached at one end of a thin wire and whirled in a vertical circle.
The chances of breaking the wire are maximum when

Ans  1.

the wire is horizontal.

 2.

the mass is at the lowest point of the circle.

 3.

the wire makes an angle of 60° with the horizontal.

 4.

the mass is at the highest point of the circle.

Question Type : MCQ

Question ID : 37135115511

Option 1 ID : 37135162043

Option 2 ID : 37135162042

Option 3 ID : 37135162044

Option 4 ID : 37135162041

Status : Answered

Chosen Option : 2

Q.29 A wheel is at rest in horizontal position. Its M.I. about vertical axis passing through its centre is 'I'. A constant torque ' τ ' acts on it for 't' second. The change in rotational kinetic energy is

Ans

✓ 1.
$$\frac{\tau^2 t^2}{2I}$$

✗ 2.
$$\left[\frac{\tau t}{2I} \right]$$

✗ 3.
$$\left[\frac{\tau t}{2I} \right]^{\frac{1}{2}}$$

✗ 4.
$$\left[\frac{\tau t}{2I} \right]^2$$

Question Type : MCQ

Question ID : 37135115516

Option 1 ID : 37135162064

Option 2 ID : 37135162063

Option 3 ID : 37135162062

Option 4 ID : 37135162061

Status : Answered

Chosen Option : 4

Q.30

A mass 'M' is suspended from a spring of negligible mass. The spring is pulled a little and then released so that the mass executes S.H.M. of period T. If the mass is increased by 'm', the time period becomes $\frac{5T}{3}$. What is the ratio $\left(\frac{M}{m}\right)$?

Ans

1. $\frac{25}{9}$

2. $\frac{16}{9}$

3. $\frac{9}{25}$

4. $\frac{9}{16}$

Question Type : MCQ

Question ID : 37135115548

Option 1 ID : 37135162189

Option 2 ID : 37135162191

Option 3 ID : 37135162190

Option 4 ID : 37135162192

Status : Answered

Chosen Option : 4

Q.31


The earth's atmosphere is divided into different layers. Out of these layers, ionosphere consists of

Ans  1.

only positive ions.

 2.

only neutral particles.

 3. only electrons.

 4.

electrons and positive ions.

Question Type : MCQ

Question ID : 37135115546

Option 1 ID : 37135162181

Option 2 ID : 37135162184

Option 3 ID : 37135162182

Option 4 ID : 37135162183

Status : Answered

Chosen Option : 4

Q.32 A parallel beam of monochromatic light falls normally on a single narrow slit. The angular width of the central maximum in the resulting diffraction pattern

Ans ✓ 1.

decreases with increase of slitwidth.

✗ 2.

increases with increase of slitwidth.

✗ 3.

decreases with decrease of slitwidth.

✗ 4.

may increase or decrease.

Question Type : **MCQ**

Question ID : **37135115508**

Option 1 ID : **37135162029**

Option 2 ID : **37135162030**

Option 3 ID : **37135162031**

Option 4 ID : **37135162032**

Status : **Answered**

Chosen Option : **1**

Q.33 A pendulum has length of 0.4 m and maximum speed 4 m/s. When the length makes an angle 30° with the horizontal, its speed will be
[$\sin \frac{\pi}{6} = \cos \frac{\pi}{3} = 0.5$ and $g = 10\text{m/s}^2$]

Ans

1. $2\sqrt{2}$ m/s

2. $\sqrt{3}$ m/s

3. $2\sqrt{5}$ m/s

4. $2\sqrt{3}$ m/s

Question Type : MCQ

Question ID : 37135115506

Option 1 ID : 37135162022

Option 2 ID : 37135162021

Option 3 ID : 37135162024

Option 4 ID : 37135162023

Status : Answered

Chosen Option : 2

Q.34 On closing an open organ pipe from one end, it is noticed that the frequency of third harmonic is 50 Hz more than the fundamental frequency of vibration in open organ pipe. The fundamental frequency of open organ pipe is

Ans

1. 250 Hz

2. 100 Hz

3. 50 Hz

4. 200 Hz

Question Type : MCQ

Question ID : 37135115509

Option 1 ID : 37135162033

Option 2 ID : 37135162035

Option 3 ID : 37135162036

Option 4 ID : 37135162034

Status : Answered

Chosen Option : 2


Q.35 If intensity of incident radiation in a photocell is increased, the stopping potential

Ans  1.

first increases and then decreases.

 2.

remains unchanged.

 3. decreases.

 4. increases.

Question Type : MCQ

Question ID : 37135115510

Option 1 ID : 37135162040

Option 2 ID : 37135162037

Option 3 ID : 37135162039

Option 4 ID : 37135162038

Status : Answered

Chosen Option : 2

Q.36 In Young's double slit experiment, the intensity of light at a point on the screen is 'K' unit for path difference ' λ '. What would be the intensity at a point if path difference is $\frac{\lambda}{4}$?

Ans

1. zero

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

3. K

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

Question Type : MCQ

Question ID : 37135115533

Option 1 ID : 37135162132

Option 2 ID : 37135162131

Option 3 ID : 37135162129

Option 4 ID : 37135162130

Status : Answered

Chosen Option : 4

Q.37


In a parallel plate capacitor, the capacity can be increased by decreasing

Ans  1.

permeability of the medium.

 2.

value of dielectric constant.

 3. area of the plates.

 4.

the distance between plates.

Question Type : MCQ

Question ID : 37135115550

Option 1 ID : 37135162200

Option 2 ID : 37135162197

Option 3 ID : 37135162198

Option 4 ID : 37135162199

Status : Answered

Chosen Option : 4

Q.38

A constant force is applied to a metal wire of length 'L'. Volume of the wire is constant. The extension produced is proportional to

Ans

✓ 1. L^2

✗ 2. L^3

✗ 3. L

✗ 4. L^{-2}

Question Type : MCQ

Question ID : 37135115539

Option 1 ID : 37135162155

Option 2 ID : 37135162154

Option 3 ID : 37135162153

Option 4 ID : 37135162156

Status : Answered

Chosen Option : 1

Q.39 The deflection in a moving coil galvanometer is reduced to half when it is shunted with 'X'Ω coil. The relation between 'X' and resistance of galvanometer 'G' is

Ans

1. $2X = G$

2. $4X = G$

3. $X = 2G$

4. $X = G$

Question Type : MCQ

Question ID : 37135115538

Option 1 ID : 37135162149

Option 2 ID : 37135162152

Option 3 ID : 37135162150

Option 4 ID : 37135162151

Status : Answered

Chosen Option : 1

Q.40

A thin prism P_1 with angle 4° and made from glass of refractive index 1.54 is combined with another thin prism P_2 made from glass of refractive index 1.72 to produce dispersion without deviation. The angle of prism for P_2 is

Ans

1. 4°

2. 5.33°

3. 2.6°

4. 3°

Question Type : MCQ

Question ID : 37135115527

Option 1 ID : 37135162106

Option 2 ID : 37135162105

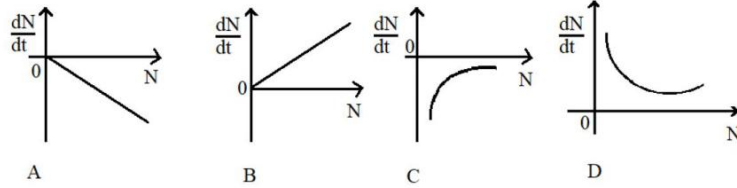
Option 3 ID : 37135162108

Option 4 ID : 37135162107

Status : Answered

Chosen Option : 3

Q.41 The variation of decay rate with number of active nuclei is correctly shown in graph



Ans

1. D

2. C

3.

A

4. B

Question Type : MCQ

Question ID : 37135115503

Option 1 ID : 37135162012

Option 2 ID : 37135162011

Option 3 ID : 37135162009

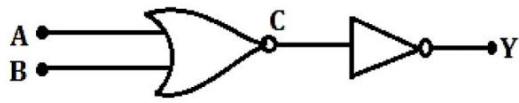
Option 4 ID : 37135162010

Status : Answered

Chosen Option : 1

Q.42

The resultant gate and its Boolean expression for the given circuit is



Ans ✓ 1.

OR, $A+B$

✗ 2. NOR, $\overline{A+B}$

✗ 3. NAND, $\overline{A \cdot B}$

✗ 4. AND, $A \cdot B$

Question Type : MCQ

Question ID : 37135115540

Option 1 ID : 37135162157

Option 2 ID : 37135162159

Option 3 ID : 37135162160

Option 4 ID : 37135162158

Status : Answered

Chosen Option : 1

Q.43 Two spheres 'S₁' and 'S₂' have same radii but temperatures T₁ and T₂ respectively.

Their emissive power is same and emissivity is in the ratio 1 : 4. Then the ratio of T₁

to T₂ is

Ans

✓ 1. $\sqrt{2} : 1$

✗ 2. $1 : 2$

✗ 3. $2 : 1$

✗ 4. $1 : \sqrt{2}$

Question Type : MCQ

Question ID : 37135115518

Option 1 ID : 37135162071

Option 2 ID : 37135162069

Option 3 ID : 37135162072

Option 4 ID : 37135162070

Status : Answered

Chosen Option : 1

Q.44 Two coaxial coils A and B of radii 'R₁' and 'R₂' are placed in the same plane. (R₂ > R₁). If a current is passed through coil B, the coefficient of mutual inductance between the coils is proportional to

Ans

✗ 1. $\frac{1}{R_1 R_2}$

✗ 2. $\frac{R_2^2}{R_1}$

✗ 3. $R_1 R_2$

✓ 4. $\frac{R_1^2}{R_2}$

Question Type : MCQ

Question ID : 37135115523

Option 1 ID : 37135162091

Option 2 ID : 37135162089

Option 3 ID : 37135162090

Option 4 ID : 37135162092

Status : Answered

Chosen Option : 3

Q.45

Two satellites 'A' and 'B' are revolving with critical velocities ' v_A ' and ' v_B ' around the earth, in circular orbits of radii ' R ' and ' $2R$ ', respectively. The ratio $\frac{v_A}{v_B}$ is

Ans

1. $2:1$

2. $\sqrt{2}:1$

3. $1:2$

4. $1:\sqrt{2}$

Question Type : MCQ

Question ID : 37135115504

Option 1 ID : 37135162014

Option 2 ID : 37135162013

Option 3 ID : 37135162016

Option 4 ID : 37135162015

Status : Answered

Chosen Option : 2

Q.46

Ordinary bodies 'A' and 'B' radiate maximum energy with wavelength difference $4\mu\text{m}$. The absolute temperature of body 'A' is 3 times that of 'B'. The wavelength at which body 'B' radiates maximum energy is

Ans

1. $12\ \mu\text{m}$.

2. $6\ \mu\text{m}$.

3. $4\ \mu\text{m}$.

4. $8\ \mu\text{m}$.

Question Type : MCQ

Question ID : 37135115541

Option 1 ID : 37135162164

Option 2 ID : 37135162162

Option 3 ID : 37135162161

Option 4 ID : 37135162163

Status : Answered

Chosen Option : 2

Q.47 A metal ball of mass 2kg moving with a speed of 10ms^{-1} had a head-on collision with a stationary ball of mass 3kg. If after collision, both the balls move together, then the loss in kinetic energy due to collision is

Ans

✓^{1.} 60 J.

✗^{2.} 100 J.

✗^{3.} 140 J.

✗^{4.} 40 J.

Question Type : MCQ

Question ID : 37135115542

Option 1 ID : 37135162166

Option 2 ID : 37135162167

Option 3 ID : 37135162168

Option 4 ID : 37135162165

Status : Not Answered

Chosen Option : -

Q.48 A charge ' q_0 ' moving with velocity ' \vec{v} ' in a magnetic field of induction ' \vec{B} ', experiences force ' \vec{F} '. The angle between \vec{v} and \vec{B} is θ .
The speed of ' q_0 ' after one second will be

Ans 1.

$$v/B$$

2. v

3. $v \times B$

4. B/v

Question Type : MCQ

Question ID : 37135115512

Option 1 ID : 37135162047

Option 2 ID : 37135162046

Option 3 ID : 37135162045

Option 4 ID : 37135162048

Status : Answered

Chosen Option : 2

Q.49 A wire of length 10 cm is gently placed horizontally on the surface of water having surface tension of $75 \times 10^3 \text{ N/m}$. What force is required to just pull up the wire from the water surface?

Ans

1. $15 \times 10^{-2} \text{ N}$

2. $7.5 \times 10^{-2} \text{ N}$

3. $1.5 \times 10^{-2} \text{ N}$

4. $75 \times 10^{-2} \text{ N}$

Question Type : **MCQ**

Question ID : **37135115549**

Option 1 ID : **37135162196**

Option 2 ID : **37135162193**

Option 3 ID : **37135162195**

Option 4 ID : **37135162194**

Status : **Answered**

Chosen Option : **3**

Q.50

The weight suspended from a spring oscillates up and down. The acceleration of weight will be zero at

Ans

- 1. mean position.
- 2. highest position.
- 3. half of the amplitude.
- 4. lowest position.

Question Type : MCQ

Question ID : 37135115536

Option 1 ID : 37135162144

Option 2 ID : 37135162142

Option 3 ID : 37135162143

Option 4 ID : 37135162141

Status : Answered

Chosen Option : 1

Section : Chemistry

Q.1

Which of the following is a character of catalyst?

Ans  1.

It changes the position of equilibrium.

 2.

It increases the rates of both forward and Backward reactions equally in reversible reaction.

 3.

It affects the energies of reactants and products of the reaction.

 4.

It increases the activation energy of reactants.

Question Type : MCQ

Question ID : 37135115570

Option 1 ID : 37135162279

Option 2 ID : 37135162278

Option 3 ID : 37135162277

Option 4 ID : 37135162280

Status : Answered

Chosen Option : 2

Q.2 Identify the decreasing order of boiling point of alkanes (i) n-pentane (ii) Isopentane (iii) Neopentane

Ans  1.

Isopentane > n-pentane > Neopentane

 2.

Neopentane > Isopentane > n-pentane

 3.

n-pentane > Isopentane > Neopentane

 4.

Isopentane > Neopentane > n-pentane

Question Type : MCQ

Question ID : 37135115600

Option 1 ID : 37135162400

Option 2 ID : 37135162399

Option 3 ID : 37135162397

Option 4 ID : 37135162398

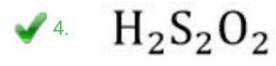
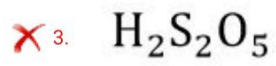
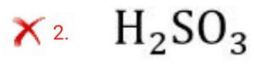
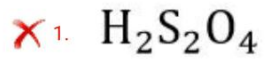
Status : Answered

Chosen Option : 3

Q.3

Which of the following oxyacid of sulphur contains S=S linkage?

Ans



Question Type : MCQ

Question ID : 37135115561

Option 1 ID : 37135162243

Option 2 ID : 37135162241

Option 3 ID : 37135162244

Option 4 ID : 37135162242

Status : Answered

Chosen Option : 4

Q.4

Methoxy ethane on reaction with hot concentrated HI gives

Ans

- 1. iodomethane and ethanol
- 2. iodomethane and iodoethane
- 3. methanol and ethanol
- 4. methanol and iodoethane

Question Type : MCQ

Question ID : 37135115569

Option 1 ID : 37135162273

Option 2 ID : 37135162275

Option 3 ID : 37135162276

Option 4 ID : 37135162274

Status : Answered

Chosen Option : 2

Q.5

When alkyl halide is boiled with large excess of alcoholic ammonia it forms

Ans

✓ 1. primary amine

✗ 2. tertiary amine

✗ 3. secondary amine

✗ 4. quaternary ammonium salt

Question Type : MCQ

Question ID : 37135115565

Option 1 ID : 37135162257

Option 2 ID : 37135162259

Option 3 ID : 37135162258

Option 4 ID : 37135162260

Status : Answered

Chosen Option : 1

Q.6

Which of the following pairs of solution is isotonic ?

(molar mass. urea = 60, sucrose = 342 g mol⁻¹)

Ans  1.

3.0 gL⁻¹ urea and 17.19 gL⁻¹ sucrose

 2.

0.3 gL⁻¹ urea and 1.719 gL⁻¹ sucrose

 3.

3.0 gL⁻¹ urea and 1.719 gL⁻¹ sucrose

 4.

0.3 gL⁻¹ urea and 17.19 gL⁻¹ sucrose

Question Type : MCQ

Question ID : 37135115576

Option 1 ID : 37135162303

Option 2 ID : 37135162304

Option 3 ID : 37135162301

Option 4 ID : 37135162302

Status : Answered

Chosen Option : 2

Q.7

The P-P-P bond angle in white phosphorus is

Ans

1. 90°

2. $109^\circ 28'$

3. 120°

4. 60°

Question Type : MCQ

Question ID : 37135115566

Option 1 ID : 37135162263

Option 2 ID : 37135162262

Option 3 ID : 37135162261

Option 4 ID : 37135162264

Status : Answered

Chosen Option : 3

Q.8

Which of the following statement is NOT correct about solution ?

Ans  1.

The three states of matter solid, liquid and gas may play the role of either solute or solvent.

 2.

The component of solution which constitute smaller part is called solute.

 3.

When water is solvent, the process of solvation is known as hydration.

 4.

True solution is a heterogenous mixture of two or more substances with fixed composition.

Question Type : MCQ

Question ID : 37135115584

Option 1 ID : 37135162336

Option 2 ID : 37135162335

Option 3 ID : 37135162333

Option 4 ID : 37135162334

Status : Answered

Chosen Option : 4

Q.9 Enthalpy of fusion and enthalpy of vaporization for water respectively are 6.01 kJ mol^{-1} and $45.07 \text{ kJ mol}^{-1}$ at 0°C what is enthalpy of sublimation at 0°C ?

Ans

1. $27.50 \text{ kJ mol}^{-1}$

2. $48.07 \text{ kJ mol}^{-1}$

3. $51.08 \text{ kJ mol}^{-1}$

4. $39.06 \text{ kJ mol}^{-1}$

Question Type : MCQ

Question ID : 37135115564

Option 1 ID : 37135162256

Option 2 ID : 37135162255

Option 3 ID : 37135162254

Option 4 ID : 37135162253

Status : Answered

Chosen Option : 3

Q.10

In the reaction



What is the mass of $\text{KCl}_{(s)}$ produced ? (at. mass K = 39, Cl = 35.5 g mol^{-1})

Ans

1. 48.0 g

2. 7.45 g

3. 24.0 g

4. 74.5 g

Question Type : MCQ

Question ID : 37135115597

Option 1 ID : 37135162387

Option 2 ID : 37135162385

Option 3 ID : 37135162386

Option 4 ID : 37135162388

Status : Answered

Chosen Option : 3

Q.11

In resonance hybrid of ozone molecule, O-O bond length is

Ans

✓^{1.} 128 pm

✗^{2.} 134.5 pm

✗^{3.} 121 pm

✗^{4.} 148 pm

Question Type : MCQ

Question ID : 37135115593

Option 1 ID : 37135162369

Option 2 ID : 37135162372

Option 3 ID : 37135162371

Option 4 ID : 37135162370

Status : Answered

Chosen Option : 3

Q.12

Which of the following changes will cause increase in vapour pressure of 1 molal aqueous KI solution at same temperature?


Ans  1.

addition of 0.1 molal solution of NaCl

 2.

addition of 0.5 molal solution of Na₂SO₄

 3. addition of water

 4. addition of 1 molal KI solution

Question Type : MCQ

Question ID : 37135115581

Option 1 ID : 37135162321

Option 2 ID : 37135162322

Option 3 ID : 37135162324

Option 4 ID : 37135162323

Status : Answered

Chosen Option : 4

Q.13 Which among the following elements is a soft element as compared to others

Ans

1. Co

2. Zn

3. W

4. Mo

Question Type : MCQ

Question ID : 37135115571

Option 1 ID : 37135162281

Option 2 ID : 37135162284

Option 3 ID : 37135162283

Option 4 ID : 37135162282

Status : Answered

Chosen Option : 2

Q.14 Which among the following gas is bubbled through the brine solution during the preparation of sodium carbonate in Solvay's process ?

Ans

✓ 1. $\text{CO}_2(\text{g})$

✗ 2. $\text{N}_2(\text{g})$

✗ 3. $\text{NO}_2(\text{g})$

✗ 4. $\text{O}_2(\text{g})$

Question Type : MCQ

Question ID : 37135115582

Option 1 ID : 37135162326

Option 2 ID : 37135162328

Option 3 ID : 37135162325

Option 4 ID : 37135162327

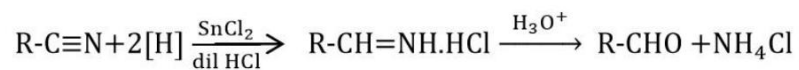
Status : Answered

Chosen Option : 4

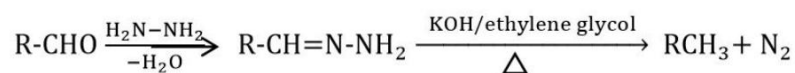
Q.15

Which of the following is Rosenmund reduction?

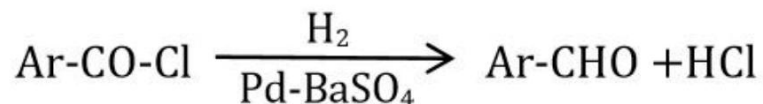
Ans 1.



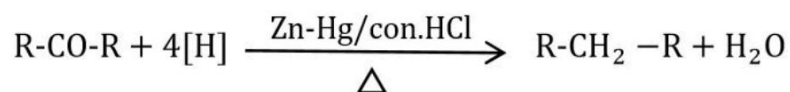
2.



3.



4.



Question Type : MCQ

Question ID : 37135115588

Option 1 ID : 37135162351

Option 2 ID : 37135162352

Option 3 ID : 37135162350

Option 4 ID : 37135162349

Status : Answered

Chosen Option : 3

Q.16 Identify the polymer obtained by heating n moles of isobutylene with n moles of isoprene at 100°C in presence of anhydrous AlCl_3

Ans

- 1. Butyl rubber
- 2. Buna-N
- 3. Buna-S
- 4. Neoprene rubber

Question Type : **MCQ**

Question ID : **37135115557**

Option 1 ID : **37135162228**

Option 2 ID : **37135162226**

Option 3 ID : **37135162225**

Option 4 ID : **37135162227**

Status : **Answered**

Chosen Option : **2**

Q.17

In the reaction, $\text{N}_2 + 3\text{H}_2 \longrightarrow 2\text{NH}_3$, the rate of disappearance of H_2 is 0.02 M/s . The rate of appearance of NH_3 is

Ans

✓ 1. 0.0133 M/s

✗ 2. 0.023 M/s

✗ 3. 0.004 M/s

✗ 4. 0.032 M/s

Question Type : MCQ

Question ID : 37135115580

Option 1 ID : 37135162318

Option 2 ID : 37135162317

Option 3 ID : 37135162320

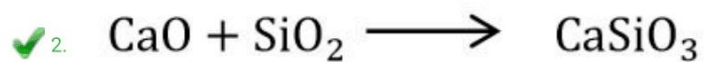
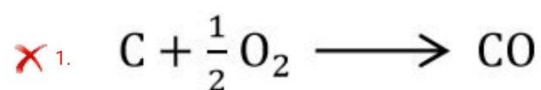
Option 4 ID : 37135162319

Status : Answered

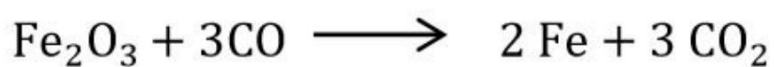
Chosen Option : 1

Q.18 Which among the following reactions occurs at the zone of slag formation in extraction of iron by blast furnace?

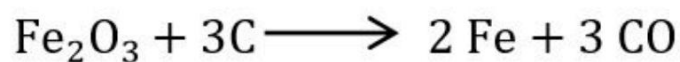
Ans



✗ 3.



✗ 4.



Question Type : MCQ

Question ID : 37135115556

Option 1 ID : 37135162224

Option 2 ID : 37135162221

Option 3 ID : 37135162223

Option 4 ID : 37135162222

Status : Answered

Chosen Option : 3

Q.19 Sodium crystallizes in bcc structure with radius 1.86×10^{-8} cm. What is the edge length of unit cell of sodium?

Ans

✓ 1. 4.3×10^{-8} cm

✗ 2. 3.72×10^{-8} cm

✗ 3. 7.44×10^{-8} cm

✗ 4. 5.26×10^{-8} cm

Question Type : MCQ

Question ID : 37135115599

Option 1 ID : 37135162395

Option 2 ID : 37135162393

Option 3 ID : 37135162396

Option 4 ID : 37135162394

Status : Answered

Chosen Option : 4

Q.20

According to Andrews isothermals at what temperature the carbondioxide gas starts to condense at 73 atmosphere?

Ans

- 1. 21.5°C
- 2. 30.98°C
- 3. 13.1°C
- 4. 48.1°C

Question Type : MCQ

Question ID : 37135115559

Option 1 ID : 37135162234

Option 2 ID : 37135162235

Option 3 ID : 37135162233

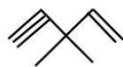
Option 4 ID : 37135162236

Status : Answered

Chosen Option : 3

Q.21

How many pi bonds and sigma bond are present in following molecule?



Ans

1. 5 π , 14 σ - bonds

2. 3 π , 17 σ - bonds

3. 3 π , 16 σ - bonds

4. 2 π , 17 σ - bonds

Question Type : MCQ

Question ID : 37135115585

Option 1 ID : 37135162338

Option 2 ID : 37135162337

Option 3 ID : 37135162340

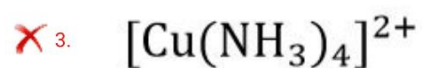
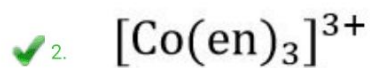
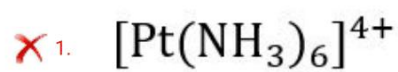
Option 4 ID : 37135162339

Status : Answered

Chosen Option : 3

Q.22 Which among the following coordination compounds does not have coordination number equal to number of ligands ?

Ans



Question Type : MCQ

Question ID : 37135115595

Option 1 ID : 37135162379

Option 2 ID : 37135162380

Option 3 ID : 37135162377

Option 4 ID : 37135162378

Status : Answered

Chosen Option : 2

Q.23

Which among the following statements about terpenes is NOT true?

Ans  1.

Terpenes occur in essential oils

 2.

Terpenes include vitamin A, E and K

 3.

Terpenes consist of isoprene units

 4.

Terpenes are saturated hydrocarbons

Question Type : MCQ

Question ID : 37135115574

Option 1 ID : 37135162296

Option 2 ID : 37135162295

Option 3 ID : 37135162293

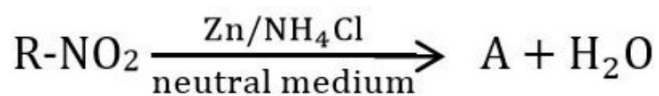
Option 4 ID : 37135162294

Status : Answered

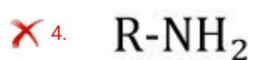
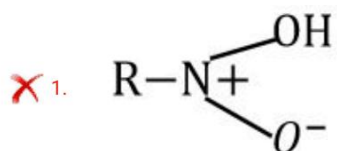
Chosen Option : 3

Q.24

Identify 'A' in the following reaction



Ans



Question Type : MCQ

Question ID : 37135115592

Option 1 ID : 37135162368

Option 2 ID : 37135162366

Option 3 ID : 37135162367

Option 4 ID : 37135162365

Status : Answered

Chosen Option : 2

Q.25

Which of following antihistamine contain -CN group ?

Ans

1. Dimetapp

2. Cimetidine

3. Terfenadine

4. Ranitidine

Question Type : MCQ

Question ID : 37135115552

Option 1 ID : 37135162208

Option 2 ID : 37135162205

Option 3 ID : 37135162207

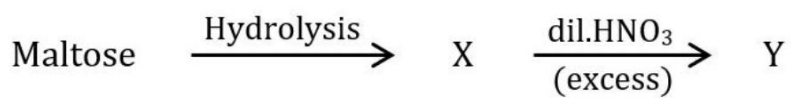
Option 4 ID : 37135162206

Status : Answered

Chosen Option : 2

Q.26

Identify the product Y in following reaction



Ans

- 1. Gluconic acid
- 2. Saccharic acid
- 3. n-Hexane
- 4. Glucoxime

Question Type : MCQ

Question ID : 37135115579

Option 1 ID : 37135162314

Option 2 ID : 37135162315

Option 3 ID : 37135162316

Option 4 ID : 37135162313

Status : Answered

Chosen Option : 1

Q.27 When carbolic acid is heated with concentrated nitric acid in presence of concentrated sulphuric acid it forms

Ans

- 1. benzoic acid
- 2. picric acid
- 3. phthalic acid
- 4. benzene sulphonic acid

Question Type : MCQ

Question ID : 37135115577

Option 1 ID : 37135162305

Option 2 ID : 37135162307

Option 3 ID : 37135162308

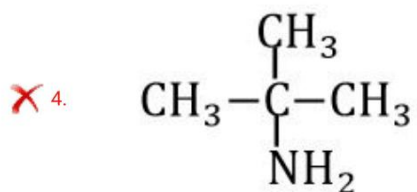
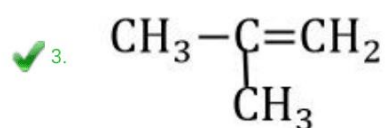
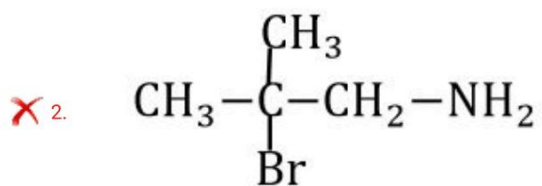
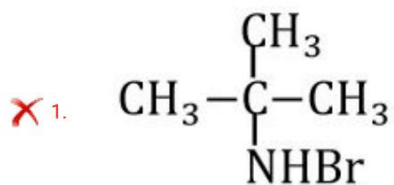
Option 4 ID : 37135162306

Status : Answered

Chosen Option : 2

Q.28 Which of the following compounds is obtained when t-butyl bromide is treated with alcoholic ammonia?

Ans



Question Type : MCQ

Question ID : 37135115598

Option 1 ID : 37135162392

Option 2 ID : 37135162391

Option 3 ID : 37135162390

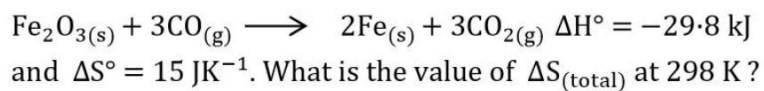
Option 4 ID : 37135162389

Status : Answered

Chosen Option : 3

Q.29

For the following reaction



Ans

1. 29.8 J

2. 100.0 J

3. 298.0 J

4. 115.0 J

Question Type : MCQ

Question ID : 37135115567

Option 1 ID : 37135162265

Option 2 ID : 37135162266

Option 3 ID : 37135162268

Option 4 ID : 37135162267

Status : Answered

Chosen Option : 2

Q.30

What is the oxidation number of carbon in glucose?

Ans

1. -6

2. +6

3. +3

4. Zero

Question Type : MCQ

Question ID : 37135115562

Option 1 ID : 37135162248

Option 2 ID : 37135162246

Option 3 ID : 37135162247

Option 4 ID : 37135162245

Status : Answered

Chosen Option : 3

Q.31

The rate constant for a second order reaction, $A \rightarrow \text{Product}$ is $1.62 \text{ M}^{-1} \text{ s}^{-1}$. What will be the rate of reaction when concentration of reactant is $2 \times 10^{-3} \text{ M}$?

Ans

1. $3.24 \times 10^{-3} \text{ Ms}^{-1}$

2. $3.24 \times 10^{-6} \text{ Ms}^{-1}$

3. $6.48 \times 10^{-6} \text{ Ms}^{-1}$

4. $2 \times 10^{-3} \text{ Ms}^{-1}$

Question Type : MCQ

Question ID : 37135115558

Option 1 ID : 37135162229

Option 2 ID : 37135162230

Option 3 ID : 37135162232

Option 4 ID : 37135162231

Status : Answered

Chosen Option : 2

Q.32

Calcite crystals used in Nicol's prism are formed of

Ans

1. CaC_2

2. CaCO_3

3. CaCl_2

4. CaO

Question Type : MCQ

Question ID : 37135115555

Option 1 ID : 37135162218

Option 2 ID : 37135162220

Option 3 ID : 37135162219

Option 4 ID : 37135162217

Status : Answered

Chosen Option : 2

Q.33

H_2 molecule is more stable than Li_2 molecule, because

Ans 1.

In H_2 molecule σ_{1s} molecular orbitals are shielded by electrons.

2. In H_2 bond order is one.

3.

In Li_2 molecule σ_{1s} molecular orbitals are shielded by electrons.

4.

In Li_2 molecule, outer σ_{2s} molecular orbitals are shielded by the inner electrons.

Question Type : MCQ

Question ID : 37135115575

Option 1 ID : 37135162298

Option 2 ID : 37135162300

Option 3 ID : 37135162297

Option 4 ID : 37135162299

Status : Answered

Chosen Option : 4

Q.34 Which of the following monomers is used in manufacture of Neoprene rubber?

Ans

1. 1,3-Butadien

2. styrene

3. 2-chlorobuta-1,3-diene

4. Isobutylene

Question Type : MCQ

Question ID : 37135115563

Option 1 ID : 37135162249

Option 2 ID : 37135162252

Option 3 ID : 37135162250

Option 4 ID : 37135162251

Status : Answered

Chosen Option : 3

Q.35

The unit of atomic mass, amu is replaced by u, here u stands for

Ans

- 1. unified mass
- 2. united mass
- 3. unique mass
- 4. universal mass

Question Type : MCQ

Question ID : 37135115554

Option 1 ID : 37135162215

Option 2 ID : 37135162214

Option 3 ID : 37135162216

Option 4 ID : 37135162213

Status : Answered

Chosen Option : 1

Q.36

What is the lowest oxidation state possessed by phosphorus in its oxyacids?

Ans

- 1. +4
- 2. +2
- 3. +5
- 4. +1

Question Type : MCQ

Question ID : 37135115578

Option 1 ID : 37135162311

Option 2 ID : 37135162309

Option 3 ID : 37135162312

Option 4 ID : 37135162310

Status : Answered

Chosen Option : 4

Q.37 What happens during bessemerization process of extraction of copper from copper pyrites?

Ans  1.

Au and Ag metals are deposited as anode mud.

 2.

Impurities as As and Sb are removed as volatile oxides.

 3.

Cu is obtained by auto reduction of Cu_2O and Cu_2S .

 4.

Iron is removed in the form of slag.

Question Type : MCQ

Question ID : 37135115553

Option 1 ID : 37135162211

Option 2 ID : 37135162209

Option 3 ID : 37135162212

Option 4 ID : 37135162210

Status : Answered

Chosen Option : 2

Q.38

What is the common unit of conductivity if the dimensions are expressed in centimeter?

Ans

1. $\Omega \text{ cm}^{-1}$

2. $\Omega^{-1} \text{ cm}^{-1}$

3. $\Omega \text{ cm}$

4. $\Omega^{-1} \text{ cm}$

Question Type : MCQ

Question ID : 37135115572

Option 1 ID : 37135162285

Option 2 ID : 37135162286

Option 3 ID : 37135162288

Option 4 ID : 37135162287

Status : Answered

Chosen Option : 2

Q.39

Blurring of vision is a side effect caused by the use of

Ans

- 1. antibiotics
- 2. antacids
- 3. tranquilizers
- 4. analgesics

Question Type : MCQ

Question ID : 37135115568

Option 1 ID : 37135162269

Option 2 ID : 37135162272

Option 3 ID : 37135162270

Option 4 ID : 37135162271

Status : Answered

Chosen Option : 3

Q.40

Identify 'Z' in the following series of reaction



Ans

1. Butan-1-ol

2. 2-chlorobutane

3. Butan-2-ol

4. But-2-ene

Question Type : MCQ

Question ID : 37135115551

Option 1 ID : 37135162203

Option 2 ID : 37135162201

Option 3 ID : 37135162204

Option 4 ID : 37135162202

Status : Answered

Chosen Option : 3

Q.41

What is the boiling point of heavy water?

Ans

1. 100.4°C

2. 101.4°C

3. 273°C

4. 100°C

Question Type : MCQ

Question ID : 37135115587

Option 1 ID : 37135162346

Option 2 ID : 37135162347

Option 3 ID : 37135162348

Option 4 ID : 37135162345

Status : Answered

Chosen Option : 2

Q.42 What is effective atomic number of Fe in $[\text{Fe}(\text{CN})_6]^{4-}$ (At. no. of Fe = 26)

Ans

1. 34

2. 26

3. 36

4. 35

Question Type : MCQ

Question ID : 37135115586

Option 1 ID : 37135162344

Option 2 ID : 37135162341

Option 3 ID : 37135162342

Option 4 ID : 37135162343

Status : Answered

Chosen Option : 3

Q.43 Which among the following elements has lowest density and is lightest?

Ans

1. Scandium

2. Cobalt

3. Copper

4. Iron

Question Type : MCQ

Question ID : 37135115596

Option 1 ID : 37135162382

Option 2 ID : 37135162384

Option 3 ID : 37135162381

Option 4 ID : 37135162383

Status : Answered

Chosen Option : 2

Q.44

What is the value of radius ratio of ionic crystal having coordination number six?

Ans

- 1. Greater than 0.732
- 2. In between 0.414 to 0.732
- 3. In between 0.225 to 0.414
- 4. Less than 0.225

Question Type : MCQ

Question ID : 37135115591

Option 1 ID : 37135162362

Option 2 ID : 37135162363

Option 3 ID : 37135162364

Option 4 ID : 37135162361

Status : Answered

Chosen Option : 1

Q.45

What is the molar conductivity of 0.1 M NaCl if its conductivity is $1.06 \times 10^{-2} \Omega^{-1} \text{cm}^{-1}$?

Ans

✓ 1. $1.06 \times 10^2 \Omega^{-1} \text{cm}^2 \text{mol}^{-1}$

✗ 2. $1.06 \times 10^{-2} \Omega^{-1} \text{cm}^2 \text{mol}^{-1}$

✗ 3. $9.4 \times 10^{-2} \Omega^{-1} \text{cm}^2 \text{mol}^{-1}$

✗ 4. $5.3 \times 10^3 \Omega^{-1} \text{cm}^2 \text{mol}^{-1}$

Question Type : MCQ

Question ID : 37135115594

Option 1 ID : 37135162374

Option 2 ID : 37135162373

Option 3 ID : 37135162376

Option 4 ID : 37135162375

Status : Answered

Chosen Option : 1

Q.46 If a mixture of iodomethane and iodoethane is treated with sodium metal in presence of dry ether it forms

Ans

1. propane and ethane

2. ethane and butane

3. propane and butane

4. ethane, propane and butane

Question Type : MCQ

Question ID : 37135115560

Option 1 ID : 37135162237

Option 2 ID : 37135162238

Option 3 ID : 37135162239

Option 4 ID : 37135162240

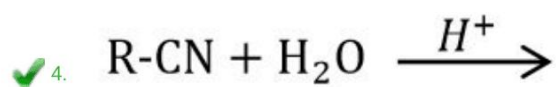
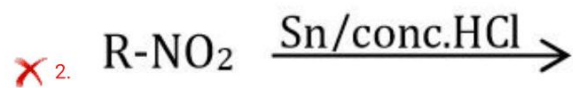
Status : Answered

Chosen Option : 4

Q.47

Which of the following reactions does NOT yield an amine

Ans



Question Type : MCQ

Question ID : 37135115583

Option 1 ID : 37135162329

Option 2 ID : 37135162332

Option 3 ID : 37135162330

Option 4 ID : 37135162331

Status : Not Answered

Chosen Option : -

Q.48

Which of the following carbonyl compounds does NOT undergo aldol condensation?

Ans

- 1. Acetone
- 2. Benzophenone
- 3. Acetaldehyde
- 4. Acetophenone

Question Type : MCQ

Question ID : 37135115573

Option 1 ID : 37135162290

Option 2 ID : 37135162292

Option 3 ID : 37135162289

Option 4 ID : 37135162291

Status : Not Answered

Chosen Option : -

Q.49

Calculate the number of unit cells in 38.6 g of noble metal having density 19.3 g cm^{-3} and volume of one unit cell is $6.18 \times 10^{-23} \text{ cm}^3$?

Ans

✓ 1. 3.236×10^{22}

✗ 2. 6.180×10^{23}

✗ 3. 6.236×10^{20}

✗ 4. 3.236×10^{23}

Question Type : MCQ

Question ID : 37135115590

Option 1 ID : 37135162358

Option 2 ID : 37135162359

Option 3 ID : 37135162357

Option 4 ID : 37135162360

Status : Not Answered

Chosen Option : -

Q.50

What is the percentage of formaldehyde in formalin ?

Ans

✗ 1. 60%

✓ 2. 40%

✗ 3. 10%

✗ 4. 20%

Question Type : MCQ

Question ID : 37135115589

Option 1 ID : 37135162356

Option 2 ID : 37135162355

Option 3 ID : 37135162353

Option 4 ID : 37135162354

Status : Answered

Chosen Option : 3

Q.1

$$\int \frac{dx}{\sqrt{5 + 4x - x^2}} =$$

Ans

✓_{1.} $\sin^{-1} \left(\frac{x-2}{3} \right) + c$

✗_{2.}

$$\log |(x - 2) + \sqrt{5 + 4x - x^2}| + c$$

✗_{3.}

$$\log |(x + 2) + \sqrt{5 + 4x - x^2}| + c$$

✗_{4.} $\sin^{-1} \left(\frac{x+2}{3} \right) + c$

Question Type : MCQ

Question ID : 37135115647

Option 1 ID : 37135162585

Option 2 ID : 37135162587

Option 3 ID : 37135162588

Option 4 ID : 37135162586

Status : Answered

Chosen Option : 1

Q.2

Degree of the differential equation $e^{\frac{dy}{dx}} + \left(\frac{dy}{dx}\right)^3 = x$ is

Ans

1. 2

2. 1

3. not defined

4. 3

Question Type : MCQ

Question ID : 37135115604

Option 1 ID : 37135162413

Option 2 ID : 37135162414

Option 3 ID : 37135162416

Option 4 ID : 37135162415

Status : Answered

Chosen Option : 3

Q.3

If $\cos 2\theta = \sin \alpha$, then $\theta =$

Ans

✗_{1.} $2n\pi \pm \left(\frac{\pi}{2} - \alpha\right), n \in \mathbb{Z}$

✗_{2.} $n\pi \pm \left(\frac{\pi}{4} + \frac{\alpha}{2}\right), n \in \mathbb{Z}$

✗_{3.} $\frac{1}{2}[n\pi + (-1)^n \alpha], n \in \mathbb{Z}$

✓_{4.} $n\pi \pm \left(\frac{\pi}{4} - \frac{\alpha}{2}\right), n \in \mathbb{Z}$

Question Type : MCQ

Question ID : 37135115625

Option 1 ID : 37135162498

Option 2 ID : 37135162497

Option 3 ID : 37135162500

Option 4 ID : 37135162499

Status : Answered

Chosen Option : 4

Q.4

The solution of differential equation $x^2 \frac{dy}{dx} = y^2 + xy$ is

Ans

✓^{1.} $\frac{x}{y} + \log |x| = c$

✗^{2.} $\frac{y}{x} + \log |x| = c$

✗^{3.} $\frac{x}{y} - \log |x| = c$

✗^{4.} $\frac{y}{x} - \log |x| = c$

Question Type : MCQ

Question ID : 37135115628

Option 1 ID : 37135162511

Option 2 ID : 37135162509

Option 3 ID : 37135162510

Option 4 ID : 37135162512

Status : Answered

Chosen Option : 1

Q.5

The maximum value of the function $y = e^{5+\sqrt{3}\sin x+\cos x}$ is

Ans

✓ 1. e^7

✗ 2. e^2

✗ 3. e^5

✗ 4. e^8

Question Type : MCQ

Question ID : 37135115620

Option 1 ID : 37135162477

Option 2 ID : 37135162479

Option 3 ID : 37135162478

Option 4 ID : 37135162480

Status : Answered

Chosen Option : 1

Q.6 If $Z = 7x + y$ subject to $5x + y \geq 5$, $x + y \geq 3$, $x \geq 0$, $y \geq 0$, then minimum value of Z is

Ans

1. 2

2. 5

3. 6

4. 3

Question Type : MCQ

Question ID : 37135115618

Option 1 ID : 37135162470

Option 2 ID : 37135162472

Option 3 ID : 37135162469

Option 4 ID : 37135162471

Status : Answered

Chosen Option : 2

Q.7

If $y = \tan^{-1}(\sec x + \tan x)$, then $\frac{dy}{dx} =$

Ans

✓^{1.} $\frac{1}{2}$

✗^{2.} 1

✗^{3.} $\frac{-1}{2}$

✗^{4.} -1

Question Type : MCQ

Question ID : 37135115612

Option 1 ID : 37135162448

Option 2 ID : 37135162446

Option 3 ID : 37135162447

Option 4 ID : 37135162445

Status : Answered

Chosen Option : 2

Q.8 The displacement of a particle at the time t is given by $s = \sqrt{1+t}$, then its acceleration 'a' is proportional to

Ans

1. square of the velocity

2. $\sqrt[3]{s}$

3. \sqrt{s}

4. cube of the velocity

Question Type : MCQ

Question ID : 37135115637

Option 1 ID : 37135162545

Option 2 ID : 37135162546

Option 3 ID : 37135162548

Option 4 ID : 37135162547

Status : Answered

Chosen Option : 4

Q.9

If $\bar{a} = \frac{1}{\sqrt{10}} (3\hat{i} + \hat{k})$, $\bar{b} = \frac{1}{7} (2\hat{i} + 3\hat{j} - 6\hat{k})$, then the value of

$(2\bar{a} - \bar{b}) \cdot [(\bar{a} \times \bar{b}) \times (\bar{a} + 2\bar{b})]$ is

Ans

1. 7

2. -5

3. 5

4. -7

Question Type : MCQ

Question ID : 37135115638

Option 1 ID : 37135162552

Option 2 ID : 37135162549

Option 3 ID : 37135162550

Option 4 ID : 37135162551

Status : Answered

Chosen Option : 2

Q.10 If the body cools from 135°C to 80°C at room temperature of 25°C in 60 minutes, then the temperature of body after 2 hours is

Ans

✓ 1. $(52.5)^{\circ}\text{C}$

✗ 2. $(10.5)^{\circ}\text{C}$

✗ 3. $(52.75)^{\circ}\text{C}$

✗ 4. $(10.75)^{\circ}\text{C}$

Question Type : MCQ

Question ID : 37135115624

Option 1 ID : 37135162495

Option 2 ID : 37135162493

Option 3 ID : 37135162496

Option 4 ID : 37135162494

Status : Answered

Chosen Option : 4

Q.11

The statement pattern $[(p \vee q) \wedge \sim p] \wedge (\sim q)$ is

Ans

✓ 1. a contradiction

✗ 2. equivalent to $p \wedge q$

✗ 3. a contingency

✗ 4. a tautology

Question Type : MCQ

Question ID : 37135115613

Option 1 ID : 37135162450

Option 2 ID : 37135162452

Option 3 ID : 37135162451

Option 4 ID : 37135162449

Status : Answered

Chosen Option : 1

Q.12

Two cards are drawn from a pack of well shuffled 52 playing cards one by one without replacement. Then the probability that both cards are queens is

Ans

✓^{1.} $\frac{1}{221}$

✗^{2.} $\frac{1}{220}$

✗^{3.} $\frac{3}{220}$

✗^{4.} $\frac{2}{221}$

Question Type : MCQ

Question ID : 37135115623

Option 1 ID : 37135162489

Option 2 ID : 37135162490

Option 3 ID : 37135162492

Option 4 ID : 37135162491

Status : Answered

Chosen Option : 1

Q.13

$$\int_0^{\frac{\pi}{2}} \frac{\sin x \cos x}{1 + \sin^4 x} dx =$$

Ans

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

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

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

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

Question Type : MCQ

Question ID : 37135115649

Option 1 ID : 37135162595

Option 2 ID : 37135162596

Option 3 ID : 37135162593

Option 4 ID : 37135162594

Status : Answered

Chosen Option : 2

Q.14

$$\tan 1^\circ \times \tan 2^\circ \times \tan 3^\circ \times \dots \times \tan 89^\circ =$$

Ans

1. $\sqrt{3}$

2. 1

3. $\sqrt{2}$

4. 2

Question Type : MCQ

Question ID : 37135115606

Option 1 ID : 37135162422

Option 2 ID : 37135162421

Option 3 ID : 37135162423

Option 4 ID : 37135162424

Status : Answered

Chosen Option : 2

Q.15

If θ is a parameter, then the parametric equations of the circle

$x^2 + y^2 - 6x + 4y - 3 = 0$ are given by

Ans  1.

$$x = -3 + 4\sin \theta \text{ and } y = -2 + 4\cos \theta$$

 2.

$$x = 3 + 4\cos \theta \text{ and } y = -2 + 4\sin \theta$$

 3.

$$x = 3 + 4\sin \theta \text{ and } y = 2 + 4\cos \theta$$

 4.

$$x = 3 + 4\cos \theta \text{ and } y = 2 + 4\sin \theta$$

Question Type : MCQ

Question ID : 37135115631

Option 1 ID : 37135162524

Option 2 ID : 37135162521

Option 3 ID : 37135162523

Option 4 ID : 37135162522

Status : Answered

Chosen Option : 2

Q.16

If $[\bar{a} \ \bar{b} \ \bar{c}] = 4$, then volume of parallelepiped with coterminus edges $\bar{a} + 2\bar{b}$,

$\bar{b} + 2\bar{c}$, $\bar{c} + 2\bar{a}$ is

Ans

✓^{1.} 36 units³

✗^{2.} 32 units³

✗^{3.} 20 units³

✗^{4.} 40 units³

Question Type : MCQ

Question ID : 37135115646

Option 1 ID : 37135162584

Option 2 ID : 37135162581

Option 3 ID : 37135162583

Option 4 ID : 37135162582

Status : Answered

Chosen Option : 1

Q.17

If $A = \begin{bmatrix} 2 & -1 \\ -1 & 2 \end{bmatrix}$, such that $A^2 - 4A + 3I = 0$, then $A^{-1} =$

Ans

1. $\frac{-1}{3} \begin{bmatrix} 2 & 1 \\ 1 & 2 \end{bmatrix}$

2. $\frac{-1}{3} \begin{bmatrix} 2 & -1 \\ -1 & 2 \end{bmatrix}$

3. $\frac{1}{3} \begin{bmatrix} -2 & -1 \\ 1 & -2 \end{bmatrix}$

4. $\frac{1}{3} \begin{bmatrix} 2 & 1 \\ 1 & 2 \end{bmatrix}$

Question Type : MCQ

Question ID : 37135115621

Option 1 ID : 37135162481

Option 2 ID : 37135162484

Option 3 ID : 37135162483

Option 4 ID : 37135162482

Status : Answered

Chosen Option : 4

Q.18

If $\sec x + \tan x = 3$, $x \in \left(0, \frac{\pi}{2}\right)$ then, $\sin x =$

Ans

1. $\frac{3}{5}$

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

3. -1

4. $\frac{1}{5}$

Question Type : MCQ

Question ID : 37135115602

Option 1 ID : 37135162405

Option 2 ID : 37135162406

Option 3 ID : 37135162408

Option 4 ID : 37135162407

Status : Answered

Chosen Option : 2

Q.19

If $x = \log t$, $y + 1 = \frac{1}{t}$, then $e^{-x} \frac{d^2x}{dy^2} + \frac{dx}{dy} =$

Ans

✓^{1.} 0

✗^{2.} 2

✗^{3.} -1

✗^{4.} 1

Question Type : MCQ

Question ID : 37135115608

Option 1 ID : 37135162429

Option 2 ID : 37135162432

Option 3 ID : 37135162431

Option 4 ID : 37135162430

Status : Answered

Chosen Option : 1

Q.20

The particular solution of the differential equation

$$\sin^2 y \frac{dx}{dy} + x = \cot y \text{ when } x = 0 \text{ and } y = \frac{3\pi}{4} \text{ is}$$

Ans

✓ 1. $x = 1 + \cot y$

✗ 2. $xy = \cot (x + y)$

✗ 3. $xy = \cot (x - y)$

✗ 4. $y = 1 + \cot x$

Question Type : MCQ

Question ID : 37135115626

Option 1 ID : 37135162501

Option 2 ID : 37135162503

Option 3 ID : 37135162504

Option 4 ID : 37135162502

Status : Answered

Chosen Option : 3

Q.21

If $A = \{2, 4\}$, $B = \{3, 4, 5\}$, then $(A \cap B) \times (A \cup B) =$

Ans

1. $\{(3, 2), (3, 4), (4, 4), (5, 4)\}$

2. $\{(2, 3), (2, 4), (2, 5)\}$

3. $\{(4, 2), (4, 3), (4, 4), (4, 5)\}$

4. $\{(4, 3), (4, 4), (4, 5)\}$

Question Type : MCQ

Question ID : 37135115636

Option 1 ID : 37135162544

Option 2 ID : 37135162543

Option 3 ID : 37135162541

Option 4 ID : 37135162542

Status : Answered


Chosen Option : 3

Q.22

If $f(x) = |x - 2|$, $x \in [0, 4]$ then the Rolle's theorem cannot be applied to the function because

Ans  1.

The function is not differentiable at every point in the $(0, 4)$.

 2. $f(4) \neq f(0)$.

 3.

Function is not well-defined in the domain.

 4.

The function is not continuous at every point in the $[0, 4]$.

Question Type : MCQ

Question ID : 37135115643

Option 1 ID : 37135162570

Option 2 ID : 37135162571

Option 3 ID : 37135162572

Option 4 ID : 37135162569

Status : Answered

Chosen Option : 1

Q.23

$$\int_0^{\infty} \frac{dx}{(x^2 + 4)(x^2 + 9)} =$$

Ans

✗ 1. $\frac{\pi}{120}$

✓ 2. $\frac{\pi}{60}$

✗ 3. $\frac{\pi}{80}$

✗ 4. $\frac{-\pi}{60}$

Question Type : MCQ

Question ID : 37135115630

Option 1 ID : 37135162518

Option 2 ID : 37135162517

Option 3 ID : 37135162520

Option 4 ID : 37135162519

Status : Answered

Chosen Option : 2

Q.24

If $y = 3e^{5x} + 5e^{3x}$, then $\frac{d^2y}{dx^2} - 8\frac{dy}{dx} =$

Ans

1. $-10y$

2. $15y$

3. $-15y$

4. $10y$

Question Type : MCQ

Question ID : 37135115635

Option 1 ID : 37135162540

Option 2 ID : 37135162539

Option 3 ID : 37135162538

Option 4 ID : 37135162537

Status : Answered

Chosen Option : 3

Q.25

If $\frac{2+4+6+8 \text{ ----- upto } n \text{ terms}}{1+3+5+7 \text{ ----- upto } n \text{ terms}} = \frac{37}{36}$, then $n =$

Ans

✓ 1. 36

✗ 2. 29

✗ 3. 23

✗ 4. 37

Question Type : MCQ

Question ID : 37135115619

Option 1 ID : 37135162474

Option 2 ID : 37135162476

Option 3 ID : 37135162475

Option 4 ID : 37135162473

Status : Answered

Chosen Option : 1

Q.26

If $f(x) = 6\beta - 3\alpha x$, if $-4 \leq x < -2$

$= 4x + 1$, if $-2 \leq x \leq 2$

is continuous on $[-4, 2]$, then $\alpha + \beta =$

Ans

✓ 1. $\frac{-7}{6}$

✗ 2. $\frac{4}{7}$

✗ 3. $\frac{-4}{7}$

✗ 4. $\frac{7}{6}$

Question Type : MCQ

Question ID : 37135115603

Option 1 ID : 37135162412

Option 2 ID : 37135162409

Option 3 ID : 37135162410

Option 4 ID : 37135162411

Status : Answered

Chosen Option : 1

Q.27

Which of the following statement pattern is a tautology?

$$S_1 \equiv \sim p \rightarrow (q \leftrightarrow p)$$

$$S_2 \equiv \sim p \vee \sim q$$

$$S_3 \equiv (p \rightarrow q) \wedge (q \rightarrow p)$$

$$S_4 \equiv (q \rightarrow p) \vee (\sim p \leftrightarrow q)$$

Ans

1. S_2

2. S_4

3. S_1

4. S_3

Question Type : MCQ

Question ID : 37135115601

Option 1 ID : 37135162402

Option 2 ID : 37135162404

Option 3 ID : 37135162401

Option 4 ID : 37135162403

Status : Answered

Chosen Option : 2

Q.28

The value of m , if the vectors $\hat{i} - \hat{j} - 6\hat{k}$, $\hat{i} - 3\hat{j} + 4\hat{k}$ and $2\hat{i} - 5\hat{j} + m\hat{k}$ are coplanar, is

Ans

1. 1

2. -3

3. 3

4. -1

Question Type : MCQ

Question ID : 37135115634

Option 1 ID : 37135162533

Option 2 ID : 37135162536

Option 3 ID : 37135162535

Option 4 ID : 37135162534

Status : Answered

Chosen Option : 3

Q.29

If two angles of $\triangle ABC$ are $\frac{\pi}{4}$ and $\frac{\pi}{3}$, then the ratio of the smallest and greatest side

is

Ans

1. $\sqrt{3} : \sqrt{2}$

2. $(\sqrt{3} - 1) : 1$

3. $(\sqrt{3} + 1) : (\sqrt{3} - 1)$

4. $(\sqrt{3} + 1) : 1$

Question Type : MCQ

Question ID : 37135115632

Option 1 ID : 37135162526

Option 2 ID : 37135162527

Option 3 ID : 37135162528

Option 4 ID : 37135162525

Status : Answered

Chosen Option : 2

Q.30

If $\frac{\sin(A+B)}{\sin(A-B)} = \frac{\cos(C+D)}{\cos(C-D)}$, then $\tan A \cot B =$

Ans

✗ 1. $\cot C \cot D$

✗ 2. $-\tan C \tan D$

✗ 3. $\tan C \tan D$

✓ 4. $-\cot C \cot D$

Question Type : MCQ

Question ID : 37135115611

Option 1 ID : 37135162444

Option 2 ID : 37135162441

Option 3 ID : 37135162443

Option 4 ID : 37135162442

Status : Answered

Chosen Option : 2

Q.31

If $O \equiv (0, 0, 0)$, $P \equiv (1, \sqrt{2}, 1)$, then the acute angles made by the line OP with XOY,

YOZ, ZOZ planes are, respectively

Ans

1. $45^\circ, 45^\circ, 60^\circ$

2. $45^\circ, 60^\circ, 30^\circ$

3. $60^\circ, 45^\circ, 60^\circ$

4. $30^\circ, 30^\circ, 45^\circ$

Question Type : MCQ

Question ID : 37135115648

Option 1 ID : 37135162590

Option 2 ID : 37135162592

Option 3 ID : 37135162589

Option 4 ID : 37135162591

Status : Answered

Chosen Option : 3

Q.32

The equation of a plane containing the point (1, -1, 1) and parallel to the plane

$2x + 3y - 4z = 17$ is

Ans

✓^{1.} $\vec{r} \cdot (2\hat{i} + 3\hat{j} - 4\hat{k}) = -5$

✗^{2.} $\vec{r} \cdot (2\hat{i} + 3\hat{j} - 4\hat{k}) = -15$

✗^{3.} $\vec{r} \cdot (4\hat{i} + 3\hat{j} - 4\hat{k}) = -3$

✗^{4.} $\vec{r} \cdot (3\hat{i} + 4\hat{j} - 2\hat{k}) = -3$

Question Type : MCQ

Question ID : 37135115642

Option 1 ID : 37135162567

Option 2 ID : 37135162568

Option 3 ID : 37135162566

Option 4 ID : 37135162565

Status : Answered

Chosen Option : 1

Q.33

The angle between the line $\frac{x-1}{2} = \frac{y+3}{1} = \frac{z+7}{2}$ and the plane $\vec{r} \cdot (6\hat{i} - 2\hat{j} - 3\hat{k}) = 5$

is

Ans

✓ 1. $\sin^{-1} \left(\frac{4}{21} \right)$

✗ 2. $\cos^{-1} \left(\frac{4}{21} \right)$

✗ 3. $\sin^{-1} \left(\frac{5}{7} \right)$

✗ 4. $\cos^{-1} \left(\frac{5}{7} \right)$

Question Type : MCQ

Question ID : 37135115640

Option 1 ID : 37135162557

Option 2 ID : 37135162560

Option 3 ID : 37135162559

Option 4 ID : 37135162558

Status : Answered

Chosen Option : 1

Q.34 The cartesian equation of the curve given by $x = 6 \cos\theta$, $y = 6 \sin\theta$ is

Ans

✓_{1.} $x^2 + y^2 = 36$

✗_{2.} $x^2 + y^2 = 5$

✗_{3.} $x^2 + y^2 = 25$

✗_{4.} $x^2 + y^2 = 6$

Question Type : MCQ

Question ID : 37135115627

Option 1 ID : 37135162506

Option 2 ID : 37135162508

Option 3 ID : 37135162507

Option 4 ID : 37135162505

Status : Answered

Chosen Option : 1

Q.35

The auxiliary equation of the lines passing through the origin and having slopes

$\sqrt{3} + 1$ and $\sqrt{3} - 1$ is

Ans

✓ 1. $m^2 - 2\sqrt{3}m + 2 = 0$

✗ 2. $m^2 - 2\sqrt{3}m - 2 = 0$

✗ 3. $m^2 + 2\sqrt{3}m - 2 = 0$

✗ 4. $m^2 + 2\sqrt{3}m + 2 = 0$

Question Type : MCQ

Question ID : 37135115607

Option 1 ID : 37135162427

Option 2 ID : 37135162428

Option 3 ID : 37135162426

Option 4 ID : 37135162425

Status : Answered

Chosen Option : 1

Q.36 Which of the following functions is not p.d.f. of a continuous random variable X ?

F_1 given by

$$f(x) = e^{-x} \quad \text{if } 0 < x < \infty \\ = 0 \quad , \quad \text{otherwise}$$

F_2 given by

$$f(x) = \frac{1}{4} \times \frac{1}{\sqrt{x}} \quad \text{if } 0 < x < 4 \\ = 0 \quad , \quad \text{otherwise}$$

F_3 given by

$$f(x) = 6x(1-x) \quad \text{if } 0 < x < 1 \\ = 0 \quad , \quad \text{otherwise}$$

F_4 given by

$$f(x) = \frac{x}{2} \quad \text{if } -2 < x < 2 \\ = 0 \quad , \quad \text{otherwise}$$

Ans

~~X~~ 1. F_3

✓ 2. F_4

~~X~~ 3. F_1

~~X~~ 4. F_2

Question Type : MCQ

Question ID : 37135115614

Option 1 ID : 37135162455

Option 2 ID : 37135162456

Option 3 ID : 37135162453

Option 4 ID : 37135162454

Status : Answered

Chosen Option : 2

Q.37

A random variable X takes the values 0, 1, 2. Its mean is 1.2. If $P(X=0)=0.3$,

then $P(X=1) =$

Ans

1. 0.1

2. 0.5

3. 0.2

4. 0.4

Question Type : MCQ

Question ID : 37135115617

Option 1 ID : 37135162465

Option 2 ID : 37135162466

Option 3 ID : 37135162468

Option 4 ID : 37135162467

Status : Answered

Chosen Option : 3

Q.38 If the equation $x^2 - 3xy + \lambda y^2 + 3x - 5y + 2 = 0$ represents a pair of lines, where λ is real number and θ is angle between them, then value of $\operatorname{cosec}^2 \theta$ is

Ans

✓^{1.} 10

✗^{2.} 3

✗^{3.} 9

✗^{4.} $\frac{1}{3}$

Question Type : MCQ

Question ID : 37135115609

Option 1 ID : 37135162435

Option 2 ID : 37135162434

Option 3 ID : 37135162436

Option 4 ID : 37135162433

Status : Answered

Chosen Option : 1

Q.39

The rate of growth of bacteria is proportional to number present. If initially there were 1000 bacteria and the number doubles in 1 hour then the number of bacteria after $2\frac{1}{2}$ hours are (Given $\sqrt{2} = 1.414$)

Ans

- 1. 4646 approximately
- 2. 5056 approximately
- 3. 5656 approximately
- 4. $400\sqrt{2}$ approximately

Question Type : MCQ

Question ID : 37135115622

Option 1 ID : 37135162488

Option 2 ID : 37135162486

Option 3 ID : 37135162485

Option 4 ID : 37135162487

Status : Answered

Chosen Option : 3

Q.40 The probability that a person wins a prize on a lottery ticket is $\frac{1}{4}$. If he purchases

5 lottery tickets at random, then the probability that he wins at least one prize is

Ans

1. $\frac{121}{1024}$

2. $\frac{774}{1024}$

3. $\frac{781}{1024}$

4. $\frac{223}{1024}$

Question Type : MCQ

Question ID : 37135115610

Option 1 ID : 37135162440

Option 2 ID : 37135162439

Option 3 ID : 37135162438

Option 4 ID : 37135162437

Status : Answered

Chosen Option : 3

Q.41

$$\int_{-5}^5 \left[\frac{e^x + e^{-x}}{e^x - e^{-x}} \right] dx =$$

Ans

✓_{1.} 0

✗_{2.} 1

✗_{3.} $3e^5$

✗_{4.} $2e^5$

Question Type : MCQ

Question ID : 37135115645

Option 1 ID : 37135162580

Option 2 ID : 37135162579

Option 3 ID : 37135162578

Option 4 ID : 37135162577

Status : Answered

Chosen Option : 1

Q.42

With usual notations, in $\triangle ABC$, if $a=2$, $b=3$, $c=5$ and $\frac{\cos A}{a} + \frac{\cos B}{b} + \frac{\cos C}{c} = \frac{k+7}{30}$,

then $k =$

Ans

1. 6

2. 16

3. 17

4. 12

Question Type : MCQ

Question ID : 37135115629

Option 1 ID : 37135162513

Option 2 ID : 37135162515

Option 3 ID : 37135162516

Option 4 ID : 37135162514

Status : Answered

Chosen Option : 4

Q.43

$$\int e^{\cos^{-1} x} \left[\frac{x - \sqrt{1 - x^2}}{\sqrt{1 - x^2}} \right] dx =$$

Ans

✗ 1. $-e^{\sin^{-1} x} + c$

✓ 2. $-x e^{\cos^{-1} x} + c$

✗ 3. $-x e^{\sin^{-1} x} + c$

✗ 4. $-e^{\cos^{-1} x} + c$

Question Type : MCQ

Question ID : 37135115641

Option 1 ID : 37135162562

Option 2 ID : 37135162563

Option 3 ID : 37135162561

Option 4 ID : 37135162564

Status : Answered

Chosen Option : 2

Q.44

If $|3x - 2| \leq \frac{1}{2}$ then $x \in$

Ans

✓^{1.} $\left[\frac{1}{2}, \frac{5}{6} \right]$

✗^{2.} $\left(\frac{1}{2}, \frac{5}{6} \right]$

✗^{3.} $\left[\frac{1}{2}, \frac{5}{6} \right)$

✗^{4.} $\left(\frac{1}{2}, \frac{5}{6} \right)$

Question Type : MCQ

Question ID : 37135115644

Option 1 ID : 37135162574

Option 2 ID : 37135162576

Option 3 ID : 37135162575

Option 4 ID : 37135162573

Status : Answered

Chosen Option : 1

Q.45

The area of the region bounded by the parabola $y^2 = 8x$ and its latus rectum is

Ans

1. $\frac{16}{3}$ sq. units

2. $\frac{8}{3}$ sq. units

3. $\frac{32}{3}$ sq. units

4. $\frac{4}{3}$ sq. units

Question Type : MCQ

Question ID : 37135115633

Option 1 ID : 37135162531

Option 2 ID : 37135162530

Option 3 ID : 37135162532

Option 4 ID : 37135162529

Status : Answered

Chosen Option : 3

Q.46

$$\int \frac{dx}{\cos x \sqrt{\cos 2x}} =$$

Ans

✗ 1. $\frac{1}{2} \log \left| \tan \left(\frac{\pi}{4} + x \right) \right| + c$

✗ 2. $\frac{1}{2} \log \left| \frac{1 - \tan x}{1 + \tan x} \right| + c$

✗ 3. $2 \log \left| \frac{1 + \tan x}{1 - \tan x} \right| + c$

✓ 4. $\sin^{-1}(\tan x) + c$

Question Type : MCQ

Question ID : 37135115639

Option 1 ID : 37135162554

Option 2 ID : 37135162555

Option 3 ID : 37135162553

Option 4 ID : 37135162556

Status : Answered

Chosen Option : 2

Q.47 If cartesian equation of the line is $x - 1 = 2y + 3 = 3 - z$, then its vector equation is

Ans 1.

$$\bar{r} = (\hat{i} - 3\hat{j} + 3\hat{k}) + \lambda (2\hat{i} + \hat{j} - 2\hat{k})$$

2.

$$\bar{r} = (-\hat{i} - 3\hat{j} + 3\hat{k}) + \lambda (\hat{i} + \frac{1}{2}\hat{j} - \hat{k})$$

3.

$$\bar{r} = (-\hat{i} + \frac{3}{2}\hat{j} - 3\hat{k}) + \lambda (2\hat{i} + \hat{j} - 2\hat{k})$$

4.

$$\bar{r} = (\hat{i} - \frac{3}{2}\hat{j} + 3\hat{k}) + \lambda (2\hat{i} + \hat{j} - 2\hat{k})$$

Question Type : MCQ

Question ID : 37135115650

Option 1 ID : 37135162597

Option 2 ID : 37135162599

Option 3 ID : 37135162600

Option 4 ID : 37135162598

Status : Answered

Chosen Option : 4

Q.48 The line through the points $(1, 4)$, $(-5, 1)$ intersects the line $4x + 3y - 5 = 0$ in the point

Ans

1. $(-1, -3)$

2. $\left(\frac{5}{3}, \frac{-5}{3}\right)$

3. $(-1, 3)$

4. $(2, 1)$

Question Type : MCQ

Question ID : 37135115616

Option 1 ID : 37135162464

Option 2 ID : 37135162463

Option 3 ID : 37135162462

Option 4 ID : 37135162461

Status : Answered

Chosen Option : 3

Q.49

Which of the following matrix is invertible ?

$$A_1 = \begin{bmatrix} 4 & 2 \\ 2 & 1 \end{bmatrix}$$

$$A_2 = \begin{bmatrix} -1 & -2 & 3 \\ 4 & 5 & 7 \\ 2 & 4 & -6 \end{bmatrix}$$

$$A_3 = \begin{bmatrix} 1 & 0 & 0 \\ 5 & 2 & 1 \\ 7 & 2 & 1 \end{bmatrix}$$

$$A_4 = \begin{bmatrix} 1 & 0 & 1 \\ 0 & 2 & 3 \\ 1 & 2 & 1 \end{bmatrix}$$

Ans

1. A_1

2. A_3

3. A_4

4. A_2

Question Type : MCQ

Question ID : 37135115615

Option 1 ID : 37135162457

Option 2 ID : 37135162459

Option 3 ID : 37135162460

Option 4 ID : 37135162458

Status : Answered

Chosen Option : 3

Q.50

The parametric equations of the line passing through A (3,4,-7), B (1,-1,6) are

Ans  1.

$$x = 3 - 2\lambda, \quad y = 4 - 5\lambda, \quad z = -7 + 13\lambda$$

 2.

$$x = -2 + 5\lambda, \quad y = -5 + 4\lambda, \quad z = 13 - 7\lambda$$

 3.

$$x = 1 + 3\lambda, \quad y = -1 + 4\lambda, \quad z = 6 - 7\lambda$$

 4.

$$x = 3 + \lambda, \quad y = -1 + 4\lambda, \quad z = -7 + 6\lambda$$

Question Type : MCQ

Question ID : 37135115605

Option 1 ID : 37135162419

Option 2 ID : 37135162420

Option 3 ID : 37135162417

Option 4 ID : 37135162418

Status : Answered

Chosen Option : 1