

**Q.1** Two galvanometers ' $G_1$ ' and ' $G_2$ ' require 2 mA and 3 mA respectively to produce the same deflection. Then

**Ans**

1.  $G_1$  and  $G_2$  are equally sensitive.

2.  $G_1$  is more sensitive than  $G_2$ .

3.  $G_1$  is less sensitive than  $G_2$ .

4.

sensitivity of  $G_2$  is  $\frac{3}{2}$  times that of  $G_1$ .

Question Type : MCQ

Question ID : 37135116568

Option 1 ID : 37135166271

Option 2 ID : 37135166269

Option 3 ID : 37135166270

Option 4 ID : 37135166272

Status : Answered

Chosen Option : 2

Q.2 When a photosensitive surface is irradiated by lights of wavelengths  $\lambda_1$  and  $\lambda_2$ , kinetic energies of emitted photoelectrons are  $E_1$  and  $E_2$  respectively. The work function of the photosensitive surface is

Ans

1. 
$$\frac{\lambda_2 E_2 - \lambda_1 E_1}{\lambda_2 - \lambda_1}$$

2. 
$$\frac{\lambda_1 E_1 + \lambda_2 E_2}{\lambda_2 + \lambda_1}$$

3. 
$$\frac{\lambda_1 E_1 - \lambda_2 E_2}{\lambda_2 - \lambda_1}$$

4. 
$$\frac{\lambda_2 E_1 + \lambda_2 E_2}{\lambda_2 - \lambda_1}$$

Question Type : MCQ

Question ID : 37135116591

Option 1 ID : 37135166363

Option 2 ID : 37135166362

Option 3 ID : 37135166361

Option 4 ID : 37135166364

Status : Answered

Chosen Option : 3

Q.3 The unknown resistances are connected in two gaps of a metre bridge. The null point is at 20 cm from zero end. A resistance of  $15\Omega$  is connected in series with the smaller of the two. The null point shifts to 40 cm. The smaller resistance is

Ans

✓<sup>1.</sup>  $9\Omega$

✗<sup>2.</sup>  $7\Omega$

✗<sup>3.</sup>  $3\Omega$

✗<sup>4.</sup>  $5\Omega$

Question Type : MCQ

Question ID : 37135116578

Option 1 ID : 37135166309

Option 2 ID : 37135166310

Option 3 ID : 37135166312

Option 4 ID : 37135166311

Status : Answered

Chosen Option : 1

Q.4 If a gas is compressed isothermally then the r.m.s. velocity of the molecules

Ans

✓<sup>1.</sup> remains the same.

✗<sup>2.</sup> increases.

✗<sup>3.</sup> decreases.

✗<sup>4.</sup>

first decreases and then increases.

Question Type : MCQ

Question ID : 37135116577

Option 1 ID : 37135166305

Option 2 ID : 37135166307

Option 3 ID : 37135166306

Option 4 ID : 37135166308

Status : Answered

Chosen Option : 1

Q.5 A circular and a square coil is prepared from two identical metal wires and a current is passed through them. Ratio of magnetic dipole moment associated with circular coil to that with square coil is

Ans

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

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

3.  $\pi$

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

Question Type : MCQ

Question ID : 37135116555

Option 1 ID : 37135166220

Option 2 ID : 37135166217

Option 3 ID : 37135166219

Option 4 ID : 37135166218

Status : Answered

Chosen Option : 2



Q.6 Light of incident frequency 2 times the threshold frequency is incident on a photosensitive material. If the incident frequency is made  $\left(\frac{1}{3}\right)^{\text{rd}}$  and intensity is doubled then the photoelectric current will

Ans

1. decrease.

2. increase.

3. be halved.

4. be zero.

Question Type : MCQ

Question ID : 37135116566

Option 1 ID : 37135166264

Option 2 ID : 37135166263

Option 3 ID : 37135166262

Option 4 ID : 37135166261

Status : Answered

Chosen Option : 2

Q.7 The polarising angle for a transparent medium is ' $\theta$ ' and ' $V$ ' is the speed of light in that medium, then relation between ' $\theta$ ' and ' $V$ ' is ( $c$  = velocity of light)

Ans

✗ 1.  $\theta = \sin^{-1} \left( \frac{V}{c} \right)$

✗ 2.  $\theta = \tan^{-1} \left( \frac{V}{c} \right)$

✓ 3.  $\theta = \cot^{-1} \left( \frac{V}{c} \right)$

✗ 4.  $\theta = \cos^{-1} \left( \frac{V}{c} \right)$

Question Type : MCQ

Question ID : 37135116600

Option 1 ID : 37135166398

Option 2 ID : 37135166400

Option 3 ID : 37135166399

Option 4 ID : 37135166397

Status : Answered

Chosen Option : 3

Q.8 In energy band diagram of insulators, a band gap and the conduction band is respectively

Ans

✓ 1. very high, empty.

✗ 2. very low, partially filled.

✗ 3. very high, completely filled.

✗ 4. very low, empty.

Question Type : MCQ

Question ID : 37135116597

Option 1 ID : 37135166385

Option 2 ID : 37135166388

Option 3 ID : 37135166387

Option 4 ID : 37135166386

Status : Answered

Chosen Option : 1



Q.9 An alternating e.m.f. is given by  $e = e_0 \sin \omega t$ . In what time the e.m.f. will have half its maximum value, if 'e' starts from zero? (T = Time period)

$$\left( \sin 30^\circ = \cos 60^\circ = 0.5, \quad \cos 30^\circ = \sin 60^\circ = \frac{\sqrt{3}}{2} \right)$$

Ans

✓ 1.  $\frac{T}{12}$

✗ 2.  $\frac{T}{16}$

✗ 3.  $\frac{T}{8}$

✗ 4.  $\frac{T}{4}$

Question Type : MCQ

Question ID : 37135116553

Option 1 ID : 37135166211

Option 2 ID : 37135166212

Option 3 ID : 37135166210

Option 4 ID : 37135166209

Status : Answered

Chosen Option : 4

Q.10 Due to surface tension, the excess pressure inside a smaller drop is 9 units. If 27 smaller drops combine, then the excess pressure inside the bigger drop is

Ans

✗ 1. 2 units

✗ 2. 1 unit

✓ 3. 3 units

✗ 4. 4 units

Question Type : MCQ

Question ID : 37135116579

Option 1 ID : 37135166315

Option 2 ID : 37135166316

Option 3 ID : 37135166314

Option 4 ID : 37135166313

Status : Answered

Chosen Option : 3



Q.11 The 3<sup>rd</sup> overtone of a closed organ pipe is in unison with 3<sup>rd</sup> overtone of an open pipe.  
The ratio of the length of the closed pipe to length of open pipe is

Ans

✓ 1.  $\frac{7}{8}$

✗ 2.  $\frac{4}{3}$

✗ 3.  $\frac{6}{5}$

✗ 4.  $\frac{7}{9}$

Question Type : MCQ

Question ID : 3713516554

Option 1 ID : 37135166215

Option 2 ID : 37135166214

Option 3 ID : 37135166213

Option 4 ID : 37135166216

Status : Answered

Chosen Option : 1

Q.12 What should be the velocity of earth due to rotation about its own axis so that the weight at equator becomes  $\left(\frac{3}{5}\right)^{\text{th}}$  of initial value ?  
(Radius of earth on equator = 6400 km,  $g = 10 \frac{\text{m}}{\text{s}^2}$ ,  $\cos 0^\circ = 1$ )

Ans

1.  $3.5 \times 10^{-4} \frac{\text{rad}}{\text{s}}$

2.  $7.91 \times 10^{-4} \frac{\text{rad}}{\text{s}}$

3.  $6.5 \times 10^{-4} \frac{\text{rad}}{\text{s}}$

4.  $2.5 \times 10^{-4} \frac{\text{rad}}{\text{s}}$

Question Type : MCQ

Question ID : 37135116559

Option 1 ID : 37135166234

Option 2 ID : 37135166236

Option 3 ID : 37135166235

Option 4 ID : 37135166233

Status : Answered

Chosen Option : 2



Q.13 Two identical parallel plate air capacitors are connected in series to a battery of e.m.f. 'V'. If one of the capacitor is inserted in liquid of dielectric constant 'K', then potential difference of the other capacitor will become

Ans

1.  $\frac{K}{V(K+1)}$

2.  $\frac{KV}{K+1}$

3.  $\frac{K+1}{KV}$

4.  $\frac{K}{V(1-K)}$

Question Type : MCQ

Question ID : 37135116583

Option 1 ID : 37135166331

Option 2 ID : 37135166329

Option 3 ID : 37135166330

Option 4 ID : 37135166332

Status : Answered

Chosen Option : 2

Q.14 From a disc of mass 'M' and radius 'R' a circular hole of diameter R is cut whose rim passes through the centre. The moment of inertia of the remaining part of the disc about perpendicular axis passing through the centre is

Ans

1.  $\frac{11MR^2}{32}$

2.  $\frac{7MR^2}{32}$

3.  $\frac{9MR^2}{32}$

4.  $\frac{13MR^2}{32}$

Question Type : MCQ

Question ID : 37135116552

Option 1 ID : 37135166207

Option 2 ID : 37135166205

Option 3 ID : 37135166206

Option 4 ID : 37135166208

Status : Answered

Chosen Option : 2

Q.15 A glass convex lens is of refractive index 1.55 with both faces of same radius of curvature. What will be the radius of curvature if focal length is to be 20 cm?

Ans

1. 22 cm

2. 21 cm

3. 18 cm

4. 20 cm

Question Type : MCQ

Question ID : 37135116565

Option 1 ID : 37135166260

Option 2 ID : 37135166259

Option 3 ID : 37135166257

Option 4 ID : 37135166258

Status : Answered

Chosen Option : 1

**Q.16** In communication system, the range for line of sight propagation in case of earth is 'd', for the height of antenna (h). If 'h' is doubled then the new range is

Ans

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

2.  $\frac{\sqrt{2}}{d}$

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

4.  $\sqrt{2} d$

Question Type : **MCQ**

Question ID : **37135116571**

Option 1 ID : **37135166282**

Option 2 ID : **37135166283**

Option 3 ID : **37135166284**

Option 4 ID : **37135166281**

Status : **Answered**

Chosen Option : **4**

Q.17 A uniform metal wire of length 'L', mass 'M' and density 'ρ' is under a tension 'T'. If the speed of transverse wave along the wire is 'V', then area of cross-section of the wire is

Ans

1.  $\frac{V}{T\rho}$

2.  $\frac{T}{V^2\rho}$

3.  $\frac{T^2}{V\rho}$

4.  $\frac{V^2}{T\rho}$

Question Type : MCQ

Question ID : 37135116572

Option 1 ID : 37135166287

Option 2 ID : 37135166285

Option 3 ID : 37135166286

Option 4 ID : 37135166288

Status : Answered

Chosen Option : 2

Q.18

A cylindrical magnetic rod has length 5 cm and diameter 1 cm. It has uniform magnetization  $5.3 \times 10^3 \frac{\text{A}}{\text{m}}$ . Its net magnetic dipole moment is nearly ( $\pi = \frac{22}{7}$ )

Ans

1.  $2.5 \times 10^{-2} \frac{\text{J}}{\text{T}}$

2.  $0.5 \times 10^{-2} \frac{\text{J}}{\text{T}}$

3.  $2 \times 10^{-2} \frac{\text{J}}{\text{T}}$

4.  $10^{-2} \frac{\text{J}}{\text{T}}$

Question Type : MCQ

Question ID : 37135116563

Option 1 ID : 37135166251

Option 2 ID : 37135166252

Option 3 ID : 37135166250

Option 4 ID : 37135166249

Status : Answered

Chosen Option : 3



Q.19 A uniform rod AB of mass 'm' and length ' $\ell$ ' is at rest on a smooth horizontal surface. An impulse 'P' is applied to the end B. The time taken by the rod to turn through a right angle is

Ans

✓ 1.  $\frac{\pi m \ell}{12 P}$

✗ 2.  $\frac{\pi P}{m \ell}$

✗ 3.  $2\pi \frac{m \ell}{P}$

✗ 4.  $2 \frac{\pi P}{m \ell}$

Question Type : MCQ

Question ID : 37135116574

Option 1 ID : 37135166295

Option 2 ID : 37135166296

Option 3 ID : 37135166293

Option 4 ID : 37135166294

Status : Answered

Chosen Option : 1

Q.20 The magnitude of total energy and angular momentum of an electron in the  $n^{\text{th}}$  orbit of a Bohr atom is denoted by  $E_n$  and  $L_n$  respectively. Then

Ans

1.  $E_n \propto L_n$

2.  $E_n \propto L_n^3$

3.  $E_n \propto \frac{1}{L_n^2}$

4.  $E_n \propto \frac{1}{L_n}$

Question Type : MCQ

Question ID : 37135116556

Option 1 ID : 37135166223

Option 2 ID : 37135166224

Option 3 ID : 37135166221

Option 4 ID : 37135166222

Status : Answered

Chosen Option : 3

Q.21 A ray of light passes through equilateral prism such that the angle of incidence is equal to angle of emergence and each of these angles is equal to  $\left(\frac{3}{4}\right)^{\text{th}}$  the angle of prism. The angle of deviation is

Ans

1.  $35^\circ$

2.  $40^\circ$

3.  $20^\circ$

4.  $30^\circ$

Question Type : MCQ

Question ID : 37135116570

Option 1 ID : 37135166279

Option 2 ID : 37135166280

Option 3 ID : 37135166277

Option 4 ID : 37135166278

Status : Answered

Chosen Option : 4

Q.22 A pipe closed at one end has length 0.8 m. At its open end a 0.5 m long uniform string is vibrating in its second harmonic and it resonates with the fundamental frequency of the pipe. If the tension in the wire is 50 N and the speed of sound is 320 m/s, the mass of the string is

Ans

1. 8 gram

2. 2 gram

3. 10 gram

4. 4 gram

Question Type : MCQ

Question ID : 37135116567

Option 1 ID : 37135166266

Option 2 ID : 37135166268

Option 3 ID : 37135166265

Option 4 ID : 37135166267

Status : Answered

Chosen Option : 3

Q.23

Photodiode is a device

Ans

1.

in which photo current is dependent on the reverse bias.

2.

which is always operated in forward bias.

3.

in which photo current is independent of incident radiation.

4.

which is always operated in reverse bias.

Question Type : MCQ

Question ID : 37135116576

Option 1 ID : 37135166304

Option 2 ID : 37135166302

Option 3 ID : 37135166303

Option 4 ID : 37135166301

Status : Answered

Chosen Option : 2

Q.24 Two cars of masses  $m_1$  and  $m_2$  are moving in circles of radii  $r_1$  and  $r_2$  respectively. Their speeds are such that they make complete circles in the same time  $t$ . The ratio of their centripetal force is

Ans

1.  $m_1 : m_2$

2.  $r_1 : r_2$

3.  $1 : 1$

4.  $m_1 r_1 : m_2 r_2$

Question Type : MCQ

Question ID : 37135116596

Option 1 ID : 37135166383

Option 2 ID : 37135166382

Option 3 ID : 37135166384

Option 4 ID : 37135166381

Status : Answered

Chosen Option : 4

Q.25 A circular current carrying coil has radius R. At what distance from the centre of the coil on the axis, the magnetic induction will become  $\frac{1}{8}$  of its value at the centre of the coil?

Ans

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

2.  $R\sqrt{3}$

3.  $\frac{R}{2\sqrt{3}}$

4.  $\frac{R}{\sqrt{3}}$

Question Type : MCQ

Question ID : 37135116560

Option 1 ID : 37135166239

Option 2 ID : 37135166237

Option 3 ID : 37135166240

Option 4 ID : 37135166238

Status : Answered

Chosen Option : 2



**Q.26** In the case of conical pendulum, if  $T$  is the tension in the string and  $\theta$  is the semivertical angle of cone, then the component of tension which balances the centrifugal force in equilibrium position is

**Ans**

✓ 1.  $T \sin \theta$

✗ 2.  $\frac{(T \sin \theta)}{2}$

✗ 3.  $T \tan \theta$

✗ 4.  $T \cos \theta$

Question Type : **MCQ**

Question ID : **37135116569**

Option 1 ID : **37135166273**

Option 2 ID : **37135166276**

Option 3 ID : **37135166275**

Option 4 ID : **37135166274**

Status : **Answered**

Chosen Option : **1**

Q.27 A molecule consists of two atoms each of mass 'm' and separated by a distance 'd'. At room temperature the average rotational kinetic energy is 'E', then its angular frequency is

Ans

✓ 1.  $\frac{2}{d} \sqrt{\frac{E}{m}}$

✗ 2.  $\sqrt{\frac{m}{Ed}}$

✗ 3.  $\frac{d}{2} \sqrt{\frac{m}{E}}$

✗ 4.  $\sqrt{\frac{Ed}{m}}$

Question Type : MCQ

Question ID : 37135116564

Option 1 ID : 37135166253

Option 2 ID : 37135166256

Option 3 ID : 37135166254

Option 4 ID : 37135166255

Status : Answered

Chosen Option : 1

Q.28 A wire of length 'L' and radius 'r' is loaded with a weight 'Mg'. If 'Y' and 'σ' denote the Young's modulus and poisson's ratio of the material of the wire respectively, then the decrease in the radius of the wire (Δr) is given by

Ans

1.  $\frac{MgY}{\pi r \sigma}$

2.  $\frac{Mg\sigma}{\pi r Y}$

3.  $\frac{\sigma \pi r}{MgY}$

4.  $\frac{Mgr}{\sigma \pi Y}$

Question Type : MCQ

Question ID : 37135116562

Option 1 ID : 37135166248

Option 2 ID : 37135166247

Option 3 ID : 37135166245

Option 4 ID : 37135166246

Status : Answered

Chosen Option : 2

Q.29 In an experiment of the measurement of 'g' using simple pendulum, the time period was measured with an accuracy of 0.2% while the length was measured with an accuracy of 0.5%. The percentage accuracy in the value of 'g' thus obtained is

Ans

1. 0.7%

2. 0.3%

3. 0.9%

4. 0.1%

Question Type : MCQ

Question ID : 37135116580

Option 1 ID : 37135166319

Option 2 ID : 37135166318

Option 3 ID : 37135166320

Option 4 ID : 37135166317

Status : Answered

Chosen Option : 3

Q.30 The magnetic moment is NOT associated with

Ans

1. accelerated charge.

2.

charge moving with constant velocity.

3. stationary charge.

4. retarded charge.

Question Type : MCQ

Question ID : 37135116581

Option 1 ID : 37135166321

Option 2 ID : 37135166324

Option 3 ID : 37135166322

Option 4 ID : 37135166323

Status : Answered

Chosen Option : 3

Q.31 Water rises to a height 3 cm in a capillary tube. If cross-sectional area of capillary tube is reduced to  $\frac{1}{9}$  of initial area then water will rise to a height of

Ans

✓ 1. 9 cm

✗ 2. 6 cm

✗ 3. 7 cm

✗ 4. 8 cm

Question Type : MCQ

Question ID : 37135116582

Option 1 ID : 37135166325

Option 2 ID : 37135166328

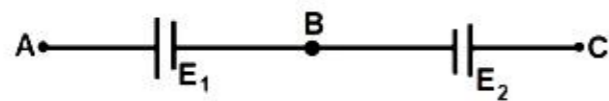
Option 3 ID : 37135166327

Option 4 ID : 37135166326

Status : Answered

Chosen Option : 1

Q.32 A potentiometer is used to measure the potential difference between A and B, the null point is obtained at 0.9 m. Now potential difference between A and C is measured, the null point is obtained at 0.3 m. The ratio  $\frac{E_2}{E_1}$  is ( $E_1 > E_2$ )



Ans

✗ 1. 3 : 1

✗ 2. 3 : 2

✓ 3. 2 : 3

✗ 4. 1 : 3

Question Type : MCQ

Question ID : 37135116558

Option 1 ID : 37135166232

Option 2 ID : 37135166231

Option 3 ID : 37135166229

Option 4 ID : 37135166230

Status : Answered

Chosen Option : 3



Q.33 Let the series limit for Balmer series be ' $\lambda_1$ ' and the longest wavelength for Brackett series be ' $\lambda_2$ '. Then  $\lambda_1$  and  $\lambda_2$  are related as

Ans

1.  $\lambda_2 = 0.09 \lambda_1$

2.  $\lambda_1 = 0.09 \lambda_2$

3.  $\lambda_1 = 1.11 \lambda_2$

4.  $\lambda_2 = 1.11 \lambda_1$

Question Type : MCQ

Question ID : 37135116587

Option 1 ID : 37135166345

Option 2 ID : 37135166347

Option 3 ID : 37135166346

Option 4 ID : 37135166348

Status : Answered

Chosen Option : 1

Q.34 Two condensers of capacities ' $C$ ' and ' $2C$ ' are connected in parallel and then in series with 3<sup>rd</sup> condenser of capacity ' $3C$ '. The combination is charged to ' $V$ ' volt. The charge on the condenser of capacity ' $C$ ' is

Ans

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

2.  $\frac{CV}{2}$

3.  $2CV$

4.  $CV$

Question Type : MCQ

Question ID : 37135116561

Option 1 ID : 37135166244

Option 2 ID : 37135166241

Option 3 ID : 37135166243

Option 4 ID : 37135166242

Status : Answered

Chosen Option : 2

Q.35 A vehicle moving with 15 km/hr comes to rest by covering 5m distance by applying brakes. If the same vehicle moves at 45 km/hr, then by applying brakes, it will come to rest by covering a distance

Ans

1. 15 m.

2. 45 m.

3. 60 m.

4. 30 m.

Question Type : MCQ

Question ID : 37135116585

Option 1 ID : 37135166337

Option 2 ID : 37135166339

Option 3 ID : 37135166340

Option 4 ID : 37135166338

Status : Answered

Chosen Option : 2

Q.36 Alternating current of peak value  $\left(\frac{2}{\pi}\right)$  A flows through the primary coil of transformer. The coefficient of mutual inductance between primary and secondary coil is 1 H. The peak e.m.f. induced in secondary coil is (Frequency of a.c. = 50 Hz)

Ans

1. 400 V

2. 200 V

3. 300 V

4. 100 V

Question Type : MCQ

Question ID : 37135116573

Option 1 ID : 37135166292

Option 2 ID : 37135166290

Option 3 ID : 37135166291

Option 4 ID : 37135166289

Status : Answered

Chosen Option : 2

Q.37

A metal wire of length 'L' is bent to form a circular coil of number of turns 'n'. The coil is placed in magnetic field 'B' and current is passed through the coil. The maximum torque acting on the coil is

Ans

✓ 1.  $\frac{BIL^2}{4\pi n}$

✗ 2.  $\frac{BIL^2}{2\pi n}$

✗ 3.  $\frac{B^2IL}{2\pi n}$

✗ 4.  $\frac{B^2IL}{4\pi n}$

Question Type : MCQ

Question ID : 37135116589

Option 1 ID : 37135166355

Option 2 ID : 37135166353

Option 3 ID : 37135166354

Option 4 ID : 37135166356

Status : Answered

Chosen Option : 1

Q.38 The ratio of specific heat at constant pressure to specific heat at constant volume ( $\gamma$ ) for a gas is  $\left(1 + \frac{2}{f}\right)$  where  $f$  is the number of degrees of freedom of a molecule of a gas. The ratio of ' $\gamma_d$ ' for rigid diatomic to ' $\gamma_m$ ' for monoatomic is

Ans

1.  $\frac{14}{23}$

2.  $\frac{25}{21}$

3.  $\frac{21}{25}$

4.  $\frac{23}{14}$

Question Type : MCQ

Question ID : 37135116598

Option 1 ID : 37135166392

Option 2 ID : 37135166389

Option 3 ID : 37135166390

Option 4 ID : 37135166391

Status : Answered

Chosen Option : 3

Q.39 A lift is tied with thick iron ropes having mass 'M'. The maximum acceleration of the lift is 'a' m/s<sup>2</sup> and maximum safe stress is 's' N/m<sup>2</sup>. The minimum diameter of the rope is (g = acceleration due to gravity)

Ans

✗ 1.  $\left[ \frac{2M(g+a)}{\pi s} \right]^{\frac{1}{2}}$

✗ 2.  $\left[ \frac{2M(g-a)}{\pi s} \right]^{\frac{1}{2}}$

✓ 3.  $\left[ \frac{4M(g+a)}{\pi s} \right]^{\frac{1}{2}}$

✗ 4.  $\left[ \frac{4M(g-a)}{\pi s} \right]^{\frac{1}{2}}$

Question Type : MCQ

Question ID : 37135116588

Option 1 ID : 37135166349

Option 2 ID : 37135166350

Option 3 ID : 37135166351

Option 4 ID : 37135166352

Status : Answered

Chosen Option : 3



Q.40 A block of mass  $m$  is moving on a rough horizontal surface. The coefficient of kinetic friction between block and surface is  $\mu_k$ . The net force exerted by the surface on the block is (  $g$  = acceleration due to gravity )

Ans

1.  $mg(1 + \mu_k)^{1/2}$

2.  $[mg(1 + \mu_k)]^{1/2}$

3.  $mg(1 + \mu_k^2)$

4.  $mg(1 + \mu_k^2)^{1/2}$

Question Type : MCQ

Question ID : 37135116575

Option 1 ID : 37135166297

Option 2 ID : 37135166300

Option 3 ID : 37135166298

Option 4 ID : 37135166299

Status : Answered

Chosen Option : 1

Q.41

Time period of a simple pendulum will be doubled if we

Ans

- 1. increase the length two times.
- 2. decrease the length two times.
- 3. decrease the length four times.
- 4. increase the length four times.

Question Type : MCQ

Question ID : 37135116584

Option 1 ID : 37135166335

Option 2 ID : 37135166333

Option 3 ID : 37135166334

Option 4 ID : 37135166336

Status : Answered

Chosen Option : 4

Q.42

A force  $(5\hat{i} - 2\hat{j} + 3\hat{k})$  N acts on a body of mass 2 kg and displaces it from  $(3\hat{i} + 2\hat{j} - \hat{k})$  m to  $(6\hat{i} - \hat{j} + 4\hat{k})$  m. The work done is

Ans

- 1. 27 J
- 2. 18 J
- 3. 36 J
- 4. 9 J

Question Type : MCQ

Question ID : 37135116590

Option 1 ID : 37135166359

Option 2 ID : 37135166358

Option 3 ID : 37135166360

Option 4 ID : 37135166357

Status : Answered

Chosen Option : 3

Q.43

If  $\vec{A} = a_1 \hat{i} + a_2 \hat{j}$  and  $\vec{B} = b_1 \hat{i} + b_2 \hat{j}$  are perpendicular to each other then

Ans

1.  $\frac{b_2}{a_1} = -\frac{a_2}{b_1}$

2.  $\frac{a_1}{b_2} = +\frac{a_2}{b_1}$

3.  $\frac{b_2}{a_1} = +\frac{a_2}{b_1}$

4.  $\frac{a_1}{b_2} = -\frac{a_2}{b_1}$

Question Type : MCQ

Question ID : 37135116595

Option 1 ID : 37135166377

Option 2 ID : 37135166378

Option 3 ID : 37135166379

Option 4 ID : 37135166380

Status : Answered

Chosen Option : 4

Q.44 A metal ball released from height 'h' makes perfectly elastic collision with ground. The frequency of periodic vibratory motion is (g = acceleration due to gravity)

Ans

1.  $\frac{1}{2\pi} \sqrt{\frac{g}{2h}}$

2.  $\frac{1}{2} \sqrt{\frac{g}{2h}}$

3.  $\frac{1}{2} \sqrt{\frac{2h}{g}}$

4.  $\frac{1}{2\pi} \sqrt{\frac{2h}{g}}$

Question Type : MCQ

Question ID : 37135116592

Option 1 ID : 37135166367

Option 2 ID : 37135166365

Option 3 ID : 37135166366

Option 4 ID : 37135166368

Status : Answered

Chosen Option : 4

Q.45 In biprism experiment, if 5<sup>th</sup> bright band with wavelength ' $\lambda_1$ ' coincides with 6<sup>th</sup> dark band with wavelength ' $\lambda_2$ ' then the ratio  $\left(\frac{\lambda_2}{\lambda_1}\right)$  is

Ans

✓ 1.  $\frac{10}{11}$

✗ 2.  $\frac{7}{9}$

✗ 3.  $\frac{11}{10}$

✗ 4.  $\frac{9}{7}$

Question Type : MCQ

Question ID : 37135116551

Option 1 ID : 37135166202

Option 2 ID : 37135166203

Option 3 ID : 37135166201

Option 4 ID : 37135166204

Status : Answered

Chosen Option : 3



**Q.46** A particle of mass 'm' is executing simple harmonic motion about its mean position. If 'A' is the amplitude and 'T' is the period of S.H.M., then the total energy of the particle is

Ans

1.  $\frac{4\pi^2 mA^2}{T^2}$

2.  $\frac{8\pi^2 mA^2}{T^2}$

3.  $\frac{2\pi^2 mA^2}{T^2}$

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

Question Type : **MCQ**

Question ID : **37135116557**

Option 1 ID : **37135166227**

Option 2 ID : **37135166228**

Option 3 ID : **37135166226**

Option 4 ID : **37135166225**

Status : **Answered**

Chosen Option : **3**

Q.47 In Young's double slit experiment, the resultant intensity of light at a point on the screen is 'I' when the path difference is ' $\lambda$ '. When the path difference is  $\frac{\lambda}{4}$ , the intensity at a point will be ( $\lambda =$  wavelength of light,  $\cos 180^\circ = -1$ ,  $\cos 45^\circ = \frac{1}{\sqrt{2}}$ )

Ans

1. Zero

2. I

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

4.  $\frac{I}{4}$

Question Type : MCQ

Question ID : 37135116593

Option 1 ID : 37135166369

Option 2 ID : 37135166370

Option 3 ID : 37135166371

Option 4 ID : 37135166372

Status : Answered

Chosen Option : 3

Q.48 The SI unit of  $\frac{G}{g}$  is ( $g$  = acceleration due to gravity,  $G$  = constant of gravitation)

Ans

1.  $\frac{\text{kg}}{\text{m}^2}$

2.  $\frac{\text{m}^2}{\text{kg}}$

3.  $\frac{\text{m}}{\text{kg}}$

4.  $\frac{\text{kg}}{\text{m}}$

Question Type : MCQ

Question ID : 37135116586

Option 1 ID : 37135166343

Option 2 ID : 37135166344

Option 3 ID : 37135166342

Option 4 ID : 37135166341

Status : Answered

Chosen Option : 3

Q.49 For a perfectly elastic collision, the coefficient of restitution  $e$  is

Ans

1. zero

2. 1

3. 0.75

4. 0.5

Question Type : MCQ

Question ID : 37135116599

Option 1 ID : 37135166393

Option 2 ID : 37135166396

Option 3 ID : 37135166395

Option 4 ID : 37135166394

Status : Answered

Chosen Option : 2

Q.50

A simple harmonic progressive wave is represented as  $Y = A \sin 2\pi \left( nt - \frac{x}{\lambda} \right)$  cm. If the maximum particle velocity is four times the wave velocity, then the wavelength of the wave is

Ans

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

2.  $4\pi A$

3.  $2\pi A$

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

Question Type : MCQ

Question ID : 37135116594

Option 1 ID : 37135166374

Option 2 ID : 37135166376

Option 3 ID : 37135166375

Option 4 ID : 37135166373

Status : Answered

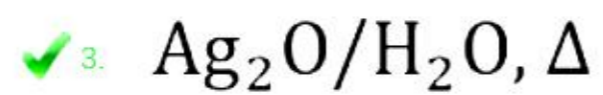
Chosen Option : 4

Section: Chemistry

Q.1

Which of the following reagents is used in Hoffmann elimination reaction of amines

Ans



Question Type : MCQ

Question ID : 3713516609

Option 1 ID : 37135166436

Option 2 ID : 37135166433

Option 3 ID : 37135166434

Option 4 ID : 37135166435

Status : Answered

Chosen Option : 4



Q.2

What will be the volume of oxygen gas produced, If the reaction  
 $2 \text{KClO}_{3(s)} \longrightarrow 2 \text{KCl}_{(s)} + 3 \text{O}_{2(g)} \Delta H^\circ = -78 \text{ kJ}$   
is carried out at S.T.P. ?

Ans

1. 48.0 L

2. 44.8 L

3. 22.4 L

4. 67.2 L

Question Type : MCQ

Question ID : 37135116603

Option 1 ID : 37135166411

Option 2 ID : 37135166410

Option 3 ID : 37135166409

Option 4 ID : 37135166412

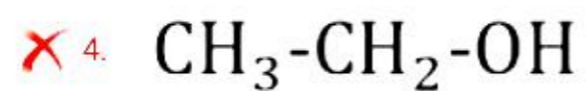
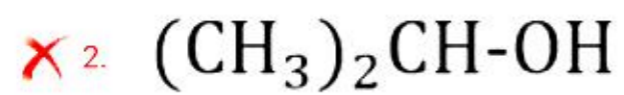
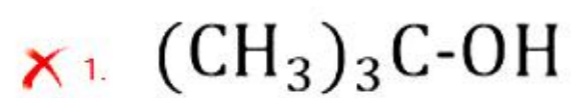
Status : Answered

Chosen Option : 4

Q.3

Which of the following alcohol is more acidic ?

Ans



Question Type : MCQ

Question ID : 37135116635

Option 1 ID : 37135166540

Option 2 ID : 37135166539

Option 3 ID : 37135166537

Option 4 ID : 37135166538

Status : Answered

Chosen Option : 3

Q.4

The increasing order of reactivity of alkaline earth metals with water is

Ans

✗ 1.  $\text{Mg} < \text{Sr} < \text{Ca} < \text{Ba}$

✗ 2.  $\text{Ba} < \text{Mg} < \text{Ca} < \text{Sr}$

✗ 3.  $\text{Ba} < \text{Sr} < \text{Ca} < \text{Mg}$

✓ 4.  $\text{Mg} < \text{Ca} < \text{Sr} < \text{Ba}$

Question Type : MCQ

Question ID : 37135116647

Option 1 ID : 37135166587

Option 2 ID : 37135166588

Option 3 ID : 37135166586

Option 4 ID : 37135166585

Status : Answered

Chosen Option : 3

Q.5

Identify the catalyst used in the manufacture of high density polythene.

Ans

✗ 1.  $\text{MnO}_2$

✗ 2. Co-Th alloy

✓ 3.  $\text{TiCl}_4$  along with  $\text{Al}(\text{C}_2\text{H}_5)_3$

✗ 4.  $\text{V}_2\text{O}_5$

Question Type : MCQ

Question ID : 37135116608

Option 1 ID : 37135166432

Option 2 ID : 37135166429

Option 3 ID : 37135166431

Option 4 ID : 37135166430

Status : Answered

Chosen Option : 3



Q.6 For first order reaction the slope of the graph of  $\log_{10}[A]_t$  Vs. time is equal to

Ans

1.  $k$

2.  $-k/2.303$

3.  $-k$

4.  $k/2.303$

Question Type : **MCQ**

Question ID : **37135116601**

Option 1 ID : **37135166403**

Option 2 ID : **37135166402**

Option 3 ID : **37135166404**

Option 4 ID : **37135166401**

Status : **Answered**

Chosen Option : **2**

Q.7

What is oxidation number of Ru in  
 $[\text{Ru}(\text{NH}_3)_5\text{H}_2\text{O}]\text{Cl}_2$  ?

Ans

1. +6

2. +5

3. +1

4. +2

Question Type : MCQ

Question ID : 37135116605

Option 1 ID : 37135166417

Option 2 ID : 37135166418

Option 3 ID : 37135166420

Option 4 ID : 37135166419

Status : Answered

Chosen Option : 4



Q.8

Which among the following ionic species has least precipitating power ?

Ans



Question Type : MCQ

Question ID : 37135116634

Option 1 ID : 37135166536

Option 2 ID : 37135166535

Option 3 ID : 37135166534

Option 4 ID : 37135166533

Status : Answered

Chosen Option : 1

Q.9

Which polymer among the following does NOT contain ester linkage in it ?

Ans

1. Dextron

2. PHBV

3. Dacron

4. Nylon-2-nylon-6

Question Type : MCQ

Question ID : 37135116627

Option 1 ID : 37135166506

Option 2 ID : 37135166507

Option 3 ID : 37135166508

Option 4 ID : 37135166505

Status : Answered

Chosen Option : 3

Q.10

Which among the following is a correct formula of Barium tetrachlorocuprate(II) ?

Ans



Question Type : MCQ

Question ID : 3713516624

Option 1 ID : 37135166496

Option 2 ID : 37135166495

Option 3 ID : 37135166494

Option 4 ID : 37135166493

Status : Answered

Chosen Option : 4

Q.11

What is the order of reaction for decomposition of gaseous acetaldehyde ?

Ans

1. 1

2. 2

3. 1.5

4. 0

Question Type : MCQ

Question ID : 37135116640

Option 1 ID : 37135166558

Option 2 ID : 37135166559

Option 3 ID : 37135166560

Option 4 ID : 37135166557

Status : Answered

Chosen Option : 2

Q.12

Which among the following elements is not present in salvarsan ?

Ans

1. P

2. O

3. N

4. As

Question Type : MCQ

Question ID : 37135116646

Option 1 ID : 37135166584

Option 2 ID : 37135166583

Option 3 ID : 37135166582

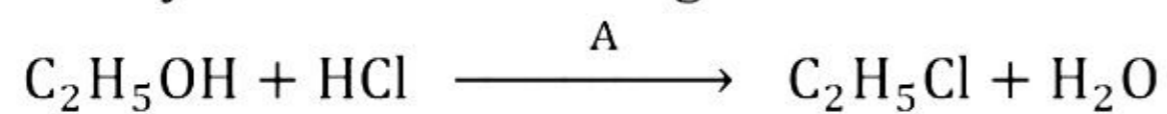
Option 4 ID : 37135166581

Status : Answered

Chosen Option : 1

Q.13

Identify 'A' in the following reaction



Ans

✓ 1. anhydrous  $\text{ZnCl}_2$

✗ 2. pyridine

✗ 3. conc.  $\text{H}_2\text{SO}_4$

✗ 4.  $\text{NaNO}_2$

Question Type : MCQ

Question ID : 37135116629

Option 1 ID : 37135166513

Option 2 ID : 37135166515

Option 3 ID : 37135166514

Option 4 ID : 37135166516

Status : Answered

Chosen Option : 1



Q.14

What is the oxidation state of chlorine atom in chloric acid ?

Ans

1. +3

2. -1

3. +5

4. +1

Question Type : MCQ

Question ID : 37135116644

Option 1 ID : 37135166575

Option 2 ID : 37135166574

Option 3 ID : 37135166576

Option 4 ID : 37135166573

Status : Answered

Chosen Option : 3

Q.15

Which among the following is a globular protein ?

Ans

✓ 1. Insulin

✗ 2. Myosin

✗ 3. Collagen

✗ 4. Fibroin

Question Type : **MCQ**

Question ID : **37135116633**

Option 1 ID : **37135166529**

Option 2 ID : **37135166530**

Option 3 ID : **37135166532**

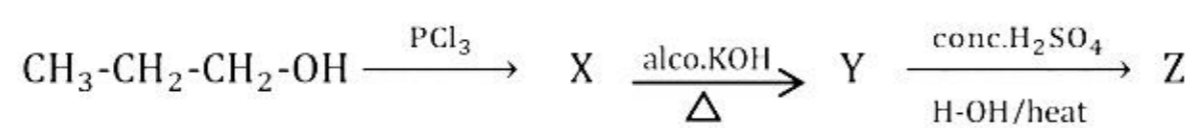
Option 4 ID : **37135166531**

Status : **Answered**

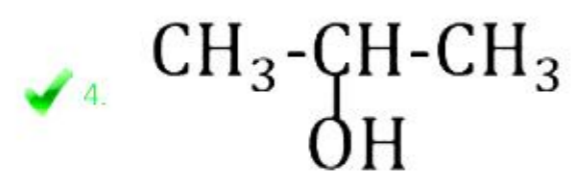
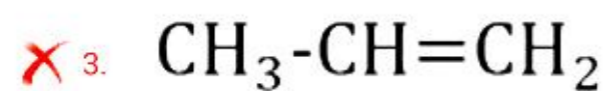
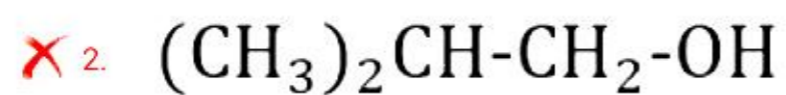
Chosen Option : **3**

Q.16

Identify Z in the following sequence of reactions ?



Ans



Question Type : MCQ

Question ID : 37135116602

Option 1 ID : 37135166405

Option 2 ID : 37135166407

Option 3 ID : 37135166408

Option 4 ID : 37135166406

Status : Answered

Chosen Option : 4

Q.17

Which of the following compounds is present in natural rubber as a monomer ?

Ans

- 1. 1, 3-Butadiene
- 2. 2-Chloro-1,3-butadiene
- 3. Styrene
- 4. 2-Methyl-1,3-butadiene

Question Type : MCQ

Question ID : 37135116650

Option 1 ID : 37135166599

Option 2 ID : 37135166597

Option 3 ID : 37135166600

Option 4 ID : 37135166598

Status : Answered

Chosen Option : 2

Q.18

Ketoxime on reduction with sodium in ethanol forms

Ans

✓ 1. 1° amine

✗ 2. 2° amine

✗ 3. 1° and 2° amine

✗ 4. 3° amine

Question Type : MCQ

Question ID : 3713516639

Option 1 ID : 37135166553

Option 2 ID : 37135166554

Option 3 ID : 37135166556

Option 4 ID : 37135166555

Status : Answered

Chosen Option : 1

Q.19

Which among the following vitamins belongs to the aliphatic series ?

Ans

✓ 1. Vitamin C

✗ 2. Vitamin A

✗ 3. Vitamin K

✗ 4. Vitamin B complex

Question Type : MCQ

Question ID : 37135116612

Option 1 ID : 37135166447

Option 2 ID : 37135166448

Option 3 ID : 37135166446

Option 4 ID : 37135166445

Status : Answered

Chosen Option : 1



Q.20

Which of the following is true for the compound AB, if it is formed by transfer of an electron from A to B ?

Ans

1. B is divalent

2. A is divalent

3. AB forms electrovalent bond

4. AB forms covalent bond

Question Type : MCQ

Question ID : 37135116643

Option 1 ID : 37135166570

Option 2 ID : 37135166569

Option 3 ID : 37135166572

Option 4 ID : 37135166571

Status : Answered

Chosen Option : 3

Q.21

When a system absorbs 8 kJ of heat and does 2.2 kJ of work on surrounding calculate the internal energy change ?

Ans

1.  $-10.2$  kJ

2.  $10.8$  kJ

3.  $8.0$  kJ

4.  $5.8$  kJ

Question Type : MCQ

Question ID : 37135116631

Option 1 ID : 37135166523

Option 2 ID : 37135166524

Option 3 ID : 37135166522

Option 4 ID : 37135166521

Status : Answered

Chosen Option : 4

Q.22

Dry ice is an example of

Ans

- 1. covalent solid
- 2. ionic solid
- 3. molecular solid
- 4. metallic solid

Question Type : **MCQ**

Question ID : **37135116623**

Option 1 ID : **37135166491**

Option 2 ID : **37135166492**

Option 3 ID : **37135166490**

Option 4 ID : **37135166489**

Status : **Answered**

Chosen Option : **3**

Q.23

Identify the gas used in gas chromatography ?

Ans

1. Helium

2. Argon

3. Hydrogen

4. Neon

Question Type : **MCQ**

Question ID : **3713516616**

Option 1 ID : **37135166462**

Option 2 ID : **37135166464**

Option 3 ID : **37135166461**

Option 4 ID : **37135166463**

Status : **Answered**

Chosen Option : **2**

Q.24

In  $\text{PCl}_5$  molecule, the angle Cl-P-Cl present in a plane is equal to

Ans

1.  $180^\circ$

2.  $120^\circ$

3.  $90^\circ$

4.  $104^\circ$

Question Type : **MCQ**

Question ID : **37135116637**

Option 1 ID : **37135166548**

Option 2 ID : **37135166547**

Option 3 ID : **37135166545**

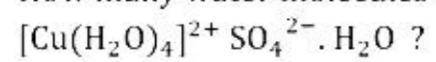
Option 4 ID : **37135166546**

Status : **Answered**

Chosen Option : **2**

Q.25

How many water molecules are hydrogen bonded in following molecular formula



Ans

1. 4

2. 3

3. 1

4. 5

Question Type : **MCQ**

Question ID : **37135116649**

Option 1 ID : **37135166595**

Option 2 ID : **37135166594**

Option 3 ID : **37135166593**

Option 4 ID : **37135166596**

Status : **Answered**

Chosen Option : **3**



Q.26

Which following method is used for refining of impure zirconium ?

Ans

- 1. Liquation
- 2. Zone refining
- 3. Polling
- 4. Van Arkel method

Question Type : **MCQ**

Question ID : **37135116630**

Option 1 ID : **37135166519**

Option 2 ID : **37135166518**

Option 3 ID : **37135166517**

Option 4 ID : **37135166520**

Status : **Answered**

Chosen Option : **4**

Q.27

Which among the following elements has highest number of atoms in 1 g each ?  
(at. no. Au = 197, Na = 23, Cu = 63.5, Fe = 56)

Ans

1. Cu(s)

2. Na(s)

3. Au(s)

4. Fe(s)

Question Type : MCQ

Question ID : 3713516607

Option 1 ID : 37135166427

Option 2 ID : 37135166426

Option 3 ID : 37135166425

Option 4 ID : 37135166428

Status : Answered

Chosen Option : 2

Q.28

Which of the following is NOT used as semipermeable membrane ?

Ans

- 1. Cellulose nitrate
- 2. Copper ferrocyanide
- 3. Ammonium chloride
- 4. Cellulose

Question Type : MCQ

Question ID : 3713516614

Option 1 ID : 37135166456

Option 2 ID : 37135166453

Option 3 ID : 37135166454

Option 4 ID : 37135166455

Status : Answered

Chosen Option : 2

Q.29

Which among the following elements is obtained in pure form by zone refining process ?

Ans

✓ 1. Germanium

✗ 2. Tin

✗ 3. Copper

✗ 4. Bismuth

Question Type : MCQ

Question ID : 37135116625

Option 1 ID : 37135166499

Option 2 ID : 37135166498

Option 3 ID : 37135166497

Option 4 ID : 37135166500

Status : Answered

Chosen Option : 1

Q.30

Which alkane is secreted by cockroaches to attract opposite gender of it's species ?

Ans

1. Octane

2. Nonane

3. Undecane

4. Decane

Question Type : **MCQ**

Question ID : **37135116620**

Option 1 ID : **37135166477**

Option 2 ID : **37135166478**

Option 3 ID : **37135166480**

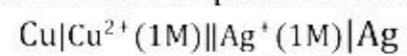
Option 4 ID : **37135166479**

Status : **Answered**

Chosen Option : **3**

Q.31

For the following cell, standard potential of copper electrode is 0.337 V and standard cell potential is 0.463 V



What is the standard potential of silver electrode?

Ans

1.  $-0.126\text{ V}$

2.  $0.800\text{ V}$

3.  $-0.463\text{ V}$

4.  $0.126\text{ V}$

Question Type : MCQ

Question ID : 37135116648

Option 1 ID : 37135166592

Option 2 ID : 37135166591

Option 3 ID : 37135166590

Option 4 ID : 37135166589

Status : Answered

Chosen Option : 2



Q.32

Which of the following does NOT give yellow precipitate when reacted with (NaOH + I<sub>2</sub>)mixture ?

Ans

1. Acetophenone

2. Benzaldehyde

3. Acetone

4. Acetaldehyde

Question Type : MCQ

Question ID : 37135116632

Option 1 ID : 37135166528

Option 2 ID : 37135166527

Option 3 ID : 37135166525

Option 4 ID : 37135166526

Status : Answered

Chosen Option : 2

Q.33

What is the value of effective magnetic moment found in +3 oxidation state of Chromium (Z=24) ?

Ans

1. 1.73 BM

2. 3.87 BM

3. 4.90 BM

4. 2.84 BM

Question Type : MCQ

Question ID : 37135116617

Option 1 ID : 37135166468

Option 2 ID : 37135166466

Option 3 ID : 37135166467

Option 4 ID : 37135166465

Status : Answered

Chosen Option : 2

Q.34

Which among the following is an alloy of antimony, tin and copper?

Ans

✓ 1. Babbitt metal

✗ 2. Spiegeleisen

✗ 3. Duralumin

✗ 4. Stainless steel

Question Type : **MCQ**

Question ID : **37135116645**

Option 1 ID : **37135166578**

Option 2 ID : **37135166580**

Option 3 ID : **37135166577**

Option 4 ID : **37135166579**

Status : **Answered**

Chosen Option : **2**

Q.35

Identify the correct relation between depression in freezing point and freezing point of pure solvent ?

Ans

1.  $T^\circ = T \times \Delta T_f$

2.  $T^\circ = \Delta T_f - T$

3.  $T^\circ = T - \Delta T_f$

4.  $T^\circ = \Delta T_f + T$

Question Type : MCQ

Question ID : 37135116606

Option 1 ID : 37135166424

Option 2 ID : 37135166422

Option 3 ID : 37135166423

Option 4 ID : 37135166421

Status : Answered

Chosen Option : 4

Q.36

What is the oxidation number of Cr in  $K_2Cr_2O_7$  ?

Ans

1. +2

2. +12

3. -6

4. +6

Question Type : MCQ

Question ID : 37135116628

Option 1 ID : 37135166512

Option 2 ID : 37135166509

Option 3 ID : 37135166511

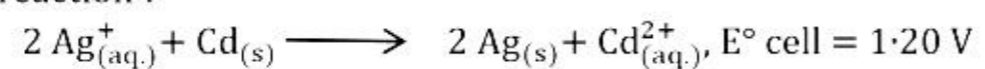
Option 4 ID : 37135166510

Status : Answered

Chosen Option : 4

Q.37

What is the standard free energy change for the cell, having following cell reaction ?



Ans

✓ 1.  $-231.6 \text{ kJ}$

✗ 2.  $-160.8 \text{ kJ}$

✗ 3.  $-115.8 \text{ kJ}$

✗ 4.  $-260.8 \text{ kJ}$

Question Type : MCQ

Question ID : 37135116622

Option 1 ID : 37135166485

Option 2 ID : 37135166488

Option 3 ID : 37135166487

Option 4 ID : 37135166486

Status : Answered

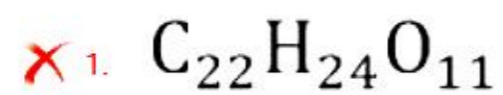
Chosen Option : 1



Q.38

An organic compound was found to contain 40.0 % C and 6.66 % H. Find it's molecular formula (molar mass = 180)

Ans



Question Type : **MCQ**

Question ID : **37135116638**

Option 1 ID : **37135166552**

Option 2 ID : **37135166550**

Option 3 ID : **37135166549**

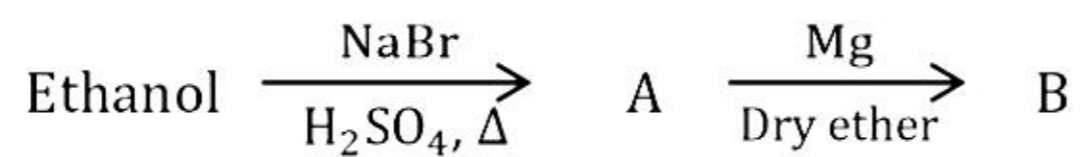
Option 4 ID : **37135166551**

Status : **Answered**

Chosen Option : **4**

Q.39

Identify 'B' in the following series of reactions



Ans

- ✓ 1. Ethyl magnesium bromide
- ✗ 2. Ethyl bromide
- ✗ 3. Sodium ethoxide
- ✗ 4. Ethene

Question Type : MCQ

Question ID : 37135116613

Option 1 ID : 37135166451

Option 2 ID : 37135166452

Option 3 ID : 37135166449

Option 4 ID : 37135166450

Status : Answered

Chosen Option : 1

Q.40

Which of the following is dihydric phenol ?

Ans

✓ 1. Resorcinol

✗ 2. m-Cresol

✗ 3. Phloroglucinol

✗ 4. Pyrogallol

Question Type : MCQ

Question ID : 37135116610

Option 1 ID : 37135166439

Option 2 ID : 37135166440

Option 3 ID : 37135166437

Option 4 ID : 37135166438

Status : Answered

Chosen Option : 1

Q.41

Which of the following is synthetic estrogen derivative ?

Ans

1. Tegamet

2. Norethindrone

3. Novestrol

4. Ranitidine

Question Type : MCQ

Question ID : 37135116618

Option 1 ID : 37135166472

Option 2 ID : 37135166469

Option 3 ID : 37135166471

Option 4 ID : 37135166470

Status : Answered

Chosen Option : 3

Q.42

What is the coordination number of cation in ionic compound if the type of hole occupied by cation is cubic ?

Ans

1. 3

2. 4

3. 8

4. 6

Question Type : MCQ

Question ID : 37135116642

Option 1 ID : 37135166565

Option 2 ID : 37135166566

Option 3 ID : 37135166568

Option 4 ID : 37135166567

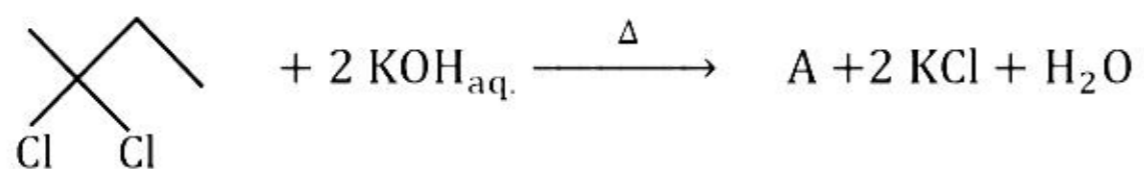
Status : Answered

Chosen Option : 4

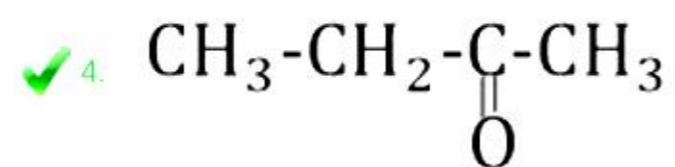
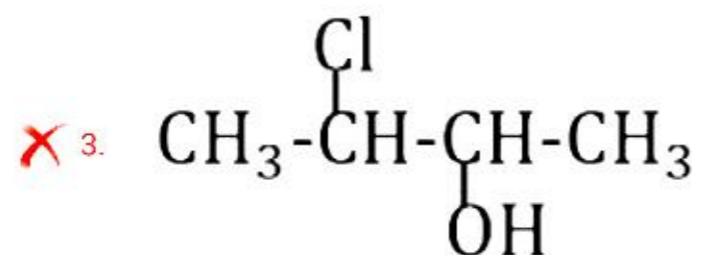
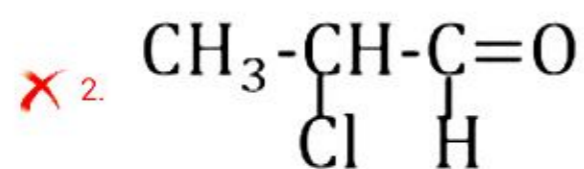
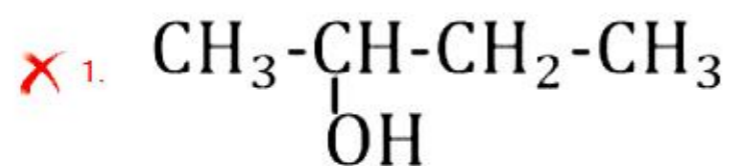


Q.43

Identify the product A in the following reaction.



Ans



Question Type : MCQ

Question ID : 37135116621

Option 1 ID : 37135166482

Option 2 ID : 37135166484

Option 3 ID : 37135166483

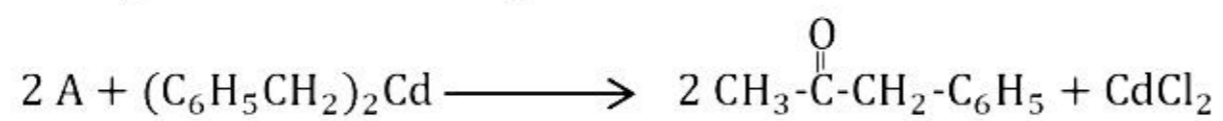
Option 4 ID : 37135166481

Status : Answered

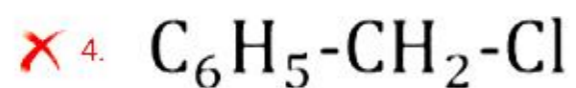
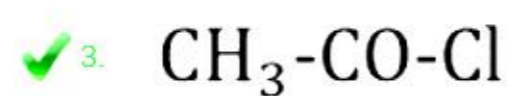
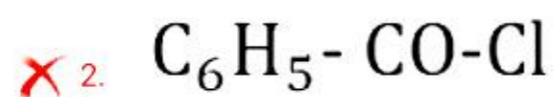
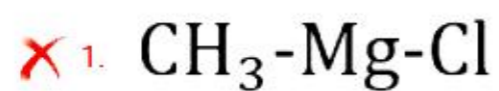
Chosen Option : 4

Q.44

Identify 'A' in the following reaction



Ans



Question Type : MCQ

Question ID : 37135116615

Option 1 ID : 37135166458

Option 2 ID : 37135166460

Option 3 ID : 37135166457

Option 4 ID : 37135166459

Status : Answered

Chosen Option : 3



Q.45

Which of the following does NOT give carbylamine test ?

Ans

- 1. Ethylamine
- 2. Sec. butylamine
- 3. Isopropylamine
- 4. Dimethylamine

Question Type : MCQ

Question ID : 3713516626

Option 1 ID : 37135166501

Option 2 ID : 37135166503

Option 3 ID : 37135166502

Option 4 ID : 37135166504

Status : Answered

Chosen Option : 4

Q.46

The coordination number of the sphere in cubic close packed (ccp) structure is

Ans

1. 6

2. 4

3. 12

4. 8

Question Type : MCQ

Question ID : 37135116604

Option 1 ID : 37135166414

Option 2 ID : 37135166413

Option 3 ID : 37135166416

Option 4 ID : 37135166415

Status : Answered

Chosen Option : 3

Q.47

According to Andrews isothermals, the minimum temperature at which carbon dioxide gas obeys Boyles law is

Ans

1. 32.5 °C

2. 31.1 °C

3. 48.1 °C

4. 35.5 °C

Question Type : MCQ

Question ID : 3713516619

Option 1 ID : 37135166474

Option 2 ID : 37135166473

Option 3 ID : 37135166476

Option 4 ID : 37135166475

Status : Answered

Chosen Option : 2

Q.48

Which of the following oxide of nitrogen is coloured ?

Ans

1.  $\text{N}_2\text{O}$

2.  $\text{NO}$

3.  $\text{NO}_2$

4.  $\text{N}_2\text{O}_4$

Question Type : MCQ

Question ID : 37135116611

Option 1 ID : 37135166443

Option 2 ID : 37135166441

Option 3 ID : 37135166444

Option 4 ID : 37135166442

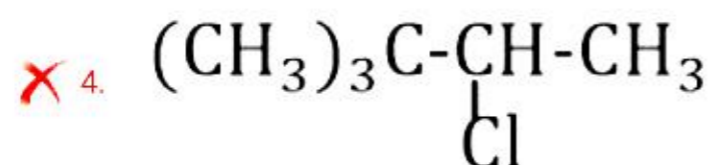
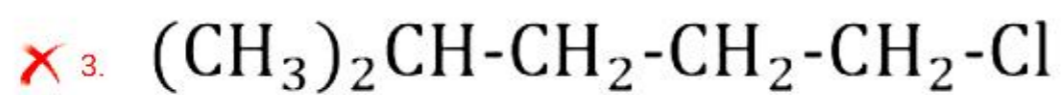
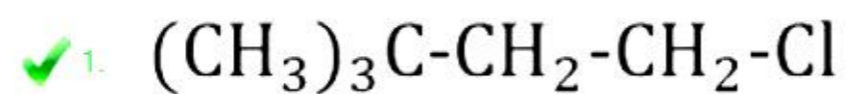
Status : Answered

Chosen Option : 3

Q.49

Identify the neohexyl chloride from the following

Ans



Question Type : MCQ

Question ID : 3713516636

Option 1 ID : 37135166543

Option 2 ID : 37135166541

Option 3 ID : 37135166542

Option 4 ID : 37135166544

Status : Answered

Chosen Option : 1

Q.50 An ideal gas expands from  $1 \times 10^{-3} \text{m}^3$  to  $1 \times 10^{-2} \text{m}^3$  at 300 K against a constant external pressure of  $1 \times 10^5 \text{nm}^{-2}$ , work done is

Ans

✓ 1.  $-9 \times 10^2 \text{ J}$

✗ 2.  $-9 \times 10^3 \text{ J}$

✗ 3.  $-0.7 \times 10^3 \text{ J}$

✗ 4.  $-1 \times 10^3 \text{ J}$

Question Type : MCQ

Question ID : 37135116641

Option 1 ID : 37135166561

Option 2 ID : 37135166562

Option 3 ID : 37135166564

Option 4 ID : 37135166563

Status : Answered

Chosen Option : 1

Division: Mathematics



Q.1 The derivative of  $f(\tan x)$  w.r.t.  $g(\sec x)$  at  $x = \frac{\pi}{4}$ , where  $f'(1) = 2$  and  $g'(\sqrt{2}) = 4$  is

Ans

✓ 1.  $\frac{1}{\sqrt{2}}$

✗ 2. 2

✗ 3.  $\sqrt{2}$

✗ 4.  $\frac{1}{2}$

Question Type : MCQ

Question ID : 37135116686

Option 1 ID : 37135166741

Option 2 ID : 37135166743

Option 3 ID : 37135166742

Option 4 ID : 37135166744

Status : Answered

Chosen Option : 3

Q.2 In a single throw of three dice, the probability of getting a sum at least 5 is

Ans

✓ 1.  $\frac{53}{54}$

✗ 2.  $\frac{51}{54}$

✗ 3.  $\frac{1}{54}$

✗ 4.  $\frac{2}{3}$

Question Type : **MCQ**

Question ID : **37135116653**

Option 1 ID : **37135166610**

Option 2 ID : **37135166609**

Option 3 ID : **37135166611**

Option 4 ID : **37135166612**

Status : **Answered**

Chosen Option : **1**

Q.3 Radium decomposes at a rate proportional to the amount present. If half the original amount disappears in 1600 yrs, then the percentage loss in 100 years is  
(Given  $\log 2 = 0.6912$  &  $e^{-0.04320} = 0.9576$ )

Ans

1. 3.24 %

2. 5.24 %

3. 2.24 %

4. 4.24 %

Question Type : MCQ

Question ID : 3713516668

Option 1 ID : 37135166671

Option 2 ID : 37135166669

Option 3 ID : 37135166672

Option 4 ID : 37135166670

Status : Answered

Chosen Option : 2

Q.4 The solution of the differential equation  $\log \left( \frac{dy}{dx} \right) = 9x - 6y + 6$  is  
(given that  $y = 1$  when  $x = 0$ )

Ans

1.  $3 e^{6y} = 2 e^{9x-6} + e^6$

2.  $3 e^{6y} = 2 e^{9x+6} + e^6$

3.  $3 e^{6y} = 2 e^{9x+6} - e^6$

4.  $3 e^{6y} = 2 e^{9x-6} - e^6$

Question Type : MCQ

Question ID : 3713516692

Option 1 ID : 37135166765

Option 2 ID : 37135166767

Option 3 ID : 37135166766

Option 4 ID : 37135166768

Status : Answered

Chosen Option : 2

Q.5 If  $f(x) = 2x^2 + bx + c$ ,  $f(0) = 3$  and  $f(2) = 1$ , then  $(f \circ f)(1) =$

Ans

1. 0

2. 2

3. 1

4. 3

Question Type : MCQ

Question ID : 3713516667

Option 1 ID : 3713516666

Option 2 ID : 3713516668

Option 3 ID : 3713516667

Option 4 ID : 3713516665

Status : Answered

Chosen Option : 4

Q.6 A line makes angles  $\alpha, \beta, \gamma$  with the co-ordinate axes, then  $\cos 2\alpha + \cos 2\beta + \cos 2\gamma$  is equal to

Ans

1. 2

2. -1

3. 1

4. -2

Question Type : MCQ

Question ID : 3713516677

Option 1 ID : 37135166707

Option 2 ID : 37135166706

Option 3 ID : 37135166705

Option 4 ID : 37135166708

Status : Answered

Chosen Option : 2

Q.7

If  $y = \tan^{-1} \left[ \frac{x - \sqrt{1-x^2}}{x + \sqrt{1-x^2}} \right]$ , then  $\left( \frac{dy}{dx} \right) =$

Ans

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

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

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

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

Question Type : MCQ

Question ID : 37135116697

Option 1 ID : 37135166785

Option 2 ID : 37135166787

Option 3 ID : 37135166786

Option 4 ID : 37135166788

Status : Answered

Chosen Option : 3

Q.8 The number of solutions of the equation  $\tan x + \sec x = 2 \cos x$  lying in the interval  $[0, 2\pi]$  is

Ans  1. 0

2. 2

3. 3

4. 1

Question Type : MCQ

Question ID : 37135116680

Option 1 ID : 37135166717

Option 2 ID : 37135166720

Option 3 ID : 37135166719

Option 4 ID : 37135166718

Status : Answered

Chosen Option : 2

Q.9 If CP and CD is a pair of semi-conjugate diameters of the ellipse  $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ , then

$CP^2 + CD^2 =$

Ans

1.  $\frac{a^2 + b^2}{2}$

2.  $a^2 + b^2$

3.  $a^2 - b^2$

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

Question Type : MCQ

Question ID : 37135116695

Option 1 ID : 37135166779

Option 2 ID : 37135166778

Option 3 ID : 37135166777

Option 4 ID : 37135166780

Status : Answered

Chosen Option : 2



Q.10

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

Ans

✓ 1.  $e^x \left( \frac{1}{1+x^2} \right) + C$

✗ 2.  $e^x \left( \frac{-1}{1+x^2} \right) + C$

✗ 3.  $e^x \left( \frac{2}{1+x^2} \right) + C$

✗ 4.  $e^x \left( \frac{-2}{1+x^2} \right) + C$

Question Type : **MCQ**

Question ID : **37135116679**

Option 1 ID : **37135166715**

Option 2 ID : **37135166713**

Option 3 ID : **37135166716**

Option 4 ID : **37135166714**

Status : **Answered**

Chosen Option : **1**

Q.11

$$\sqrt{2 + \sqrt{2 + 2\cos 4\theta}} =$$

Ans

✓ 1.  $2 \cos \theta$

✗ 2.  $\frac{\cos \theta}{2}$

✗ 3.  $\frac{\cos \theta}{\sqrt{2}}$

✗ 4.  $\sqrt{2} \cdot \cos \theta$

Question Type : MCQ

Question ID : 37135116688

Option 1 ID : 37135166751

Option 2 ID : 37135166752

Option 3 ID : 37135166750

Option 4 ID : 37135166749

Status : Answered

Chosen Option : 1

Q.12 The approximate value of the function  $f(x) = x^3 + 5x^2 - 7x + 10$  at  $x = 1.1$  is

Ans

✗ 1. 7.6

✗ 2. 8.6

✗ 3. 6.6

✓ 4. 9.6

Question Type : MCQ

Question ID : 37135116670

Option 1 ID : 37135166678

Option 2 ID : 37135166679

Option 3 ID : 37135166677

Option 4 ID : 37135166680

Status : Answered

Chosen Option : 4

Q.13 If the sum of slopes of the pair of lines given by  $4x^2 + 2hxy - 7y^2 = 0$  is equal to the product of the slopes, then h is

Ans

✓ 1.  $-2$

✗ 2.  $-4$

✗ 3.  $4$

✗ 4.  $-6$

Question Type : MCQ

Question ID : 37135116673

Option 1 ID : 37135166690

Option 2 ID : 37135166691

Option 3 ID : 37135166692

Option 4 ID : 37135166689

Status : Answered

Chosen Option : 1

Q.14

If  $A = \begin{bmatrix} 1 & 2 & 1 \\ 2 & 1 & 0 \end{bmatrix}$ ,  $B = \begin{bmatrix} 1 & 2 \\ 2 & 1 \\ 0 & 1 \end{bmatrix}$ , then  $(AB)^{-1}$  is

Ans

1.  $\begin{pmatrix} 1 \\ \frac{1}{5} \end{pmatrix} \begin{bmatrix} 5 & -5 \\ 4 & -5 \end{bmatrix}$

2.  $\begin{pmatrix} 1 \\ \frac{1}{5} \end{pmatrix} \begin{bmatrix} 5 & -5 \\ -4 & 5 \end{bmatrix}$

3.  $\begin{pmatrix} 1 \\ \frac{1}{5} \end{pmatrix} \begin{bmatrix} 5 & -5 \\ 4 & 5 \end{bmatrix}$

4.  $\begin{pmatrix} 1 \\ \frac{1}{5} \end{pmatrix} \begin{bmatrix} 5 & -5 \\ -4 & -5 \end{bmatrix}$

Question Type : MCQ

Question ID : 37135116655

Option 1 ID : 37135166619

Option 2 ID : 37135166618

Option 3 ID : 37135166617

Option 4 ID : 37135166620

Status : Answered

Chosen Option : 2

Q.15 If  $\sin (y+z-x)$ ,  $\sin (z+x-y)$  and  $\sin (x+y-z)$  are in A.P., then

Ans

1.  $2 \tan y = \tan x - \tan z$

2.  $\tan y = \tan x + \tan z$

3.  $2 \tan y = \tan x + \tan z$

4.  $\tan y = \tan x - \tan z$

Question Type : MCQ

Question ID : 37135116658

Option 1 ID : 37135166632

Option 2 ID : 37135166629

Option 3 ID : 37135166631

Option 4 ID : 37135166630

Status : Answered

Chosen Option : 3

Q.16 For the probability distribution of X given below

X = x	-2	-1	0	1	2
P (X = x)	0.2	0.3	0.1	0.15	0.25

The variance of X is

Ans

1. 2.4257

2. 2.5427

3. 2.5742

4. 2.2475

Question Type : MCQ

Question ID : 37135116678

Option 1 ID : 37135166711

Option 2 ID : 37135166712

Option 3 ID : 37135166709

Option 4 ID : 37135166710

Status : Answered

Chosen Option : 4

Q.17 If  $n(X) = 700$ ,  $n(A) = 200$ ,  $n(B) = 300$ ,  $n(A \cap B) = 100$ , where  $X$  is universal set and  $A$  and  $B$  are subsets of  $X$ , then  $n(A' \cap B') =$

Ans

✓ 1. 300

✗ 2. 400

✗ 3. 340

✗ 4. 240

Question Type : MCQ

Question ID : 37135116674

Option 1 ID : 37135166694

Option 2 ID : 37135166693

Option 3 ID : 37135166696

Option 4 ID : 37135166695

Status : Answered

Chosen Option : 1



Q.18

$$\int \frac{7^{7^{7^x}} 7^{7^x} 7^x}{7^{7^{7^x}}} dx =$$

Ans

1.  $7^{7^{7^x}} (\log 7)^3 + C$

2.  $\frac{7^{7^{7^x}}}{(\log 7)^2} + C$

3.  $\frac{7^{7^{7^x}}}{(\log 7)} + C$

4.  $\frac{7^{7^{7^x}}}{(\log 7)^3} + C$

Question Type : MCQ

Question ID : 37135116665

Option 1 ID : 37135166660

Option 2 ID : 37135166658

Option 3 ID : 37135166657

Option 4 ID : 37135166659

Status : Answered

Chosen Option : 4

Q.19 The optimal solution of the L.P.P. Maximize :  $Z = 8x + 3y$  subject to the constraints  $x + y \leq 3, 4x + y \leq 6, x \geq 0, y \geq 0$  is

Ans

✗ 1.  $x = 0, y = 3$

✗ 2.  $x = 0, y = 0$

✗ 3.  $x = \frac{3}{2}, y = 0$

✓ 4.  $x = 1, y = 2$

Question Type : MCQ

Question ID : 3713516660

Option 1 ID : 37135166639

Option 2 ID : 37135166637

Option 3 ID : 37135166638

Option 4 ID : 37135166640

Status : Answered

Chosen Option : 4

Q.20 The distance of the point  $(2, -1, 0)$  from the plane  $2x + y + 2z + 8 = 0$  is

Ans

1.  $\frac{17}{3}$  units

2.  $\frac{13}{3}$  units

3.  $\frac{7}{3}$  units

4.  $\frac{11}{3}$  units

Question Type : MCQ

Question ID : 3713516685

Option 1 ID : 37135166739

Option 2 ID : 37135166738

Option 3 ID : 37135166740

Option 4 ID : 37135166737

Status : Answered

Chosen Option : 4

Q.21

If the function given by  $f(x) = \left(\frac{4x+1}{1-4x}\right)^{\frac{1}{x}}$  for  $x \neq 0$  is continuous at  $x = 0$ , then

the value of  $f(0)$  is

Ans

✓ 1.  $e^8$

✗ 2.  $e^{10}$

✗ 3.  $e^{-8}$

✗ 4.  $e^{-10}$

Question Type : MCQ

Question ID : 37135116689

Option 1 ID : 37135166754

Option 2 ID : 37135166755

Option 3 ID : 37135166753

Option 4 ID : 37135166756

Status : Answered

Chosen Option : 1

Q.22

If  $A + B + C = 180^\circ$ , then the value of

$\tan\left(\frac{A}{2}\right)\tan\left(\frac{B}{2}\right) + \tan\left(\frac{B}{2}\right)\tan\left(\frac{C}{2}\right) + \tan\left(\frac{C}{2}\right)\tan\left(\frac{A}{2}\right)$  is

Ans

✓ 1. 1

✗ 2. -1

✗ 3. -2

✗ 4. 2

Question Type : MCQ

Question ID : 37135116690

Option 1 ID : 37135166758

Option 2 ID : 37135166757

Option 3 ID : 37135166760

Option 4 ID : 37135166759

Status : Answered

Chosen Option : 1

Q.23

The angle between the two lines

$$\frac{x-4}{1} = \frac{y+4}{2} = \frac{z+1}{2} \quad \text{and} \quad \frac{x+1}{2} = \frac{y+3}{2} = \frac{z-4}{-1} \quad \text{is}$$

Ans

✓<sup>1.</sup>  $\cos^{-1} \left( \frac{4}{9} \right)$

✗<sup>2.</sup>  $\cos^{-1} \left( \frac{5}{9} \right)$

✗<sup>3.</sup>  $\cos^{-1} \left( \frac{1}{9} \right)$

✗<sup>4.</sup>  $\cos^{-1} \left( \frac{2}{9} \right)$

Question Type : MCQ

Question ID : 3713516693

Option 1 ID : 37135166772

Option 2 ID : 37135166771

Option 3 ID : 37135166769

Option 4 ID : 37135166770

Status : Answered

Chosen Option : 1

Q.24

$$\int e^{\tan^{-1}x} \left(1 + \frac{x}{1+x^2}\right) dx$$

Ans

✗ 1.  $\left(\frac{x}{2}\right) e^{\tan^{-1}x} + c$

✓ 2.  $x e^{\tan^{-1}x} + c$

✗ 3.  $\left(\frac{1}{2}\right) e^{\tan^{-1}x} + c$

✗ 4.  $e^{\tan^{-1}x} + c$

Question Type : MCQ

Question ID : 37135116672

Option 1 ID : 37135166685

Option 2 ID : 37135166688

Option 3 ID : 37135166686

Option 4 ID : 37135166687

Status : Answered

Chosen Option : 2



Q.25 The co-ordinates of the mid-point of the chord cut off by the line  $2x - 5y + 18 = 0$  by the circle  $x^2 + y^2 - 6x + 2y - 54 = 0$  are

Ans

✓ 1. (1, 4)

✗ 2. (2, 4)

✗ 3. (4, 1)

✗ 4. (1, 1)

Question Type : MCQ

Question ID : 37135116694

Option 1 ID : 37135166774

Option 2 ID : 37135166773

Option 3 ID : 37135166775

Option 4 ID : 37135166776

Status : Answered

Chosen Option : 1

Q.26 The differential equation of the family of curves  $y = e^x (A \cos x + B \sin x)$ , where A and B are arbitrary constants is

Ans

✗ 1.  $\frac{d^2y}{dx^2} + 2\left(\frac{dy}{dx}\right) + 2y = 0$

✗ 2.  $\frac{d^2y}{dx^2} - 2\left(\frac{dy}{dx}\right) - 2y = 0$

✗ 3.  $\frac{d^2y}{dx^2} + 2\left(\frac{dy}{dx}\right) - 2y = 0$

✓ 4.  $\frac{d^2y}{dx^2} - 2\left(\frac{dy}{dx}\right) + 2y = 0$

Question Type : MCQ

Question ID : 3713516691

Option 1 ID : 37135166761

Option 2 ID : 37135166762

Option 3 ID : 37135166764

Option 4 ID : 37135166763

Status : Answered

Chosen Option : 4

Q.27 The area of the region bounded by the curve  $y = x^2 + 1$ , the lines  $x = 1$ ,  $x = 2$  and the x - axis is

Ans

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

2.  $\frac{10}{3}$  sq. units

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

4.  $\frac{19}{3}$  sq. units

Question Type : **MCQ**

Question ID : **37135116656**

Option 1 ID : **37135166622**

Option 2 ID : **37135166621**

Option 3 ID : **37135166623**

Option 4 ID : **37135166624**

Status : **Answered**

Chosen Option : **2**

Q.28 If the tangent to the curve given by  $x = t^2 - 1$  and  $y = t^2 - t$  is parallel to X - axis, then the value of t is

Ans

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

2. 0

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

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

Question Type : MCQ

Question ID : 3713516652

Option 1 ID : 37135166606

Option 2 ID : 37135166607

Option 3 ID : 37135166605

Option 4 ID : 37135166608

Status : Answered

Chosen Option : 4

Q.29 If  $f$  and  $g$  are differentiable functions satisfying  $g'(a) = 2$ ,  $g(a) = b$  and  $f \circ g = I$ , where  $I$  is an identity function, then  $f'(b)$  is equal to

Ans

✓ 1.  $\frac{1}{2}$

✗ 2.  $\frac{3}{2}$

✗ 3.  $\frac{2}{3}$

✗ 4.  $2$

Question Type : MCQ

Question ID : 37135116675

Option 1 ID : 37135166699

Option 2 ID : 37135166700

Option 3 ID : 37135166698

Option 4 ID : 37135166697

Status : Answered

Chosen Option : 3

Q.30

If the p.m.f. is given by  $P(X) = k \binom{4}{x}$ , for  $x = 0, 1, 2, 3, 4, k > 0$   
 $= 0$ , otherwise

then the value of k is

Ans

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

2.  $\frac{7}{16}$

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

4.  $\frac{5}{16}$

Question Type : MCQ

Question ID : 37135116676

Option 1 ID : 37135166702

Option 2 ID : 37135166704

Option 3 ID : 37135166701

Option 4 ID : 37135166703

Status : Answered

Chosen Option : 3



Q.31 If the A.M. and G.M. of the roots of a quadratic equation in  $x$  are  $p$  and  $q$  respectively, then its equation is

Ans

1.  $x^2 + 2px + q^2 = 0$

2.  $x^2 + px + q^2 = 0$

3.  $x^2 - px + q^2 = 0$

4.  $x^2 - 2px + q^2 = 0$

Question Type : MCQ

Question ID : 37135116657

Option 1 ID : 37135166626

Option 2 ID : 37135166628

Option 3 ID : 37135166627

Option 4 ID : 37135166625

Status : Answered

Chosen Option : 4

Q.32 If  $A = \begin{bmatrix} 1 & 0 \\ -1 & 7 \end{bmatrix}$ ,  $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$  and  $A^2 = 8A + kI$ , then the value of  $K$  is

Ans

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

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

3.  $-7$

4.  $7$

Question Type : MCQ

Question ID : 37135116682

Option 1 ID : 37135166727

Option 2 ID : 37135166728

Option 3 ID : 37135166726

Option 4 ID : 37135166725

Status : Answered

Chosen Option : 3

Q.33 If  $2f(x) = f'(x)$  and  $f(0) = 3$ , then the value of  $f(2)$  is

Ans

1.  $3e^2$

2.  $2e^3$

3.  $4e^3$

4.  $3e^4$

Question Type : MCQ

Question ID : 37135116681

Option 1 ID : 37135166724

Option 2 ID : 37135166723

Option 3 ID : 37135166721

Option 4 ID : 37135166722

Status : Answered

Chosen Option : 4

Q.34 The joint equation of the lines through the origin trisecting angles in first and third quadrant is

Ans

1.  $\sqrt{3}(x^2 - y^2) + 4xy = 0$

2.  $\sqrt{3}(x^2 + y^2) - 4xy = 0$

3.  $\sqrt{3}(x^2 + y^2) + 4xy = 0$

4.  $\sqrt{3}(x^2 - y^2) - 4xy = 0$

Question Type : MCQ

Question ID : 37135116664

Option 1 ID : 37135166654

Option 2 ID : 37135166656

Option 3 ID : 37135166655

Option 4 ID : 37135166653

Status : Answered

Chosen Option : 2

Q.35

$$\int_0^{\frac{\pi}{2}} \sin^2 x \, dx =$$

Ans

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

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

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

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

Question Type : MCQ

Question ID : 37135116661

Option 1 ID : 37135166641

Option 2 ID : 37135166643

Option 3 ID : 37135166644

Option 4 ID : 37135166642

Status : Answered

Chosen Option : 4

Q.36 If  $\sin x + \sin^2 x = 1$ , then  $\cos^8 x + 2\cos^6 x + \cos^4 x$  is

Ans

1. 3

2. 2

3. 1

4. 4

Question Type : MCQ

Question ID : 37135116651

Option 1 ID : 37135166602

Option 2 ID : 37135166603

Option 3 ID : 37135166604

Option 4 ID : 37135166601

Status : Answered

Chosen Option : 3

Q.37 The perimeter of the triangle whose vertices have the position vectors  $\hat{i} + \hat{j} + \hat{k}$ ,  $5\hat{i} + 3\hat{j} - 3\hat{k}$  and  $2\hat{i} + 5\hat{j} + 9\hat{k}$  is

Ans

1.  $(\sqrt{15} - \sqrt{157})$  units

2.  $(15 + \sqrt{157})$  units

3.  $(15 - \sqrt{157})$  units

4.  $(\sqrt{15} + \sqrt{157})$  units

Question Type : MCQ

Question ID : 37135116671

Option 1 ID : 37135166684

Option 2 ID : 37135166681

Option 3 ID : 37135166682

Option 4 ID : 37135166683

Status : Answered

Chosen Option : 2

Q.38

$$\int_{-4}^4 \log \left( \frac{8-x}{8+x} \right) dx =$$

Ans

1.  $-4$

2.  $8$

3.  $4$

4.  $0$

Question Type : MCQ

Question ID : 37135116700

Option 1 ID : 37135166798

Option 2 ID : 37135166799

Option 3 ID : 37135166797

Option 4 ID : 37135166800

Status : Answered

Chosen Option : 4

Q.39 If  $\vec{a} = 2\hat{i} - \hat{j} + \hat{k}$ ,  $\vec{b} = \hat{i} + 2\hat{j} - 3\hat{k}$  and  $\vec{c} = 3\hat{i} + \lambda\hat{j} + 5\hat{k}$  are coplanar, then  $\lambda$  is the root of the equation

Ans

1.  $x^2 + 2x = 6$

2.  $x^2 + 2x = 4$

3.  $x^2 + 3x = 6$

4.  $x^2 + 3x = 4$

Question Type : MCQ

Question ID : 37135116662

Option 1 ID : 37135166646

Option 2 ID : 37135166648

Option 3 ID : 37135166647

Option 4 ID : 37135166645

Status : Answered

Chosen Option : 4





Q.40

Amongs the given statements below

(a)  $\sim p \vee (\sim p \vee \sim q)$

(b)  $\sim q \wedge (\sim p \vee \sim q)$

(c)  $(\sim p \vee \sim q) \wedge (p \vee \sim q)$

(d)  $(\sim p \vee \sim q) \vee (p \vee \sim q)$

\_\_\_\_\_ is a tautology

Ans

1. (b)

2. (a)

3. (c)

4. (d)

Question Type : MCQ

Question ID : 3713516696

Option 1 ID : 37135166782

Option 2 ID : 37135166781

Option 3 ID : 37135166783

Option 4 ID : 37135166784

Status : Answered

Chosen Option : 4



Q.41 If a fair coin is tossed 8 times, then the probability that it shows heads more than tails is

Ans

1.  $\frac{91}{256}$

2.  $\frac{97}{256}$

3.  $\frac{93}{256}$

4.  $\frac{95}{256}$

Question Type : MCQ

Question ID : 37135116684

Option 1 ID : 37135166733

Option 2 ID : 37135166736

Option 3 ID : 37135166734

Option 4 ID : 37135166735

Status : Answered

Chosen Option : 3

Q.42 The distance of the point (7, 5, 2) from the plane  $3x + 4y + z - 8 = 0$  measured parallel to the line  $\frac{x-1}{3} = \frac{y-2}{6} = \frac{z+1}{2}$  is

Ans

1.  $\sqrt{74}$  units

2.  $\sqrt{47}$  units

3. 6 units

4. 7 units

Question Type : MCQ

Question ID : 3713516669

Option 1 ID : 37135166676

Option 2 ID : 37135166673

Option 3 ID : 37135166674

Option 4 ID : 37135166675

Status : Answered

Chosen Option : 1

Q.43 The acute angle between the lines given by  $y - \sqrt{3}x + 1 = 0$  and  $\sqrt{3}y - x + 7 = 0$  is

Ans

1.  $75^\circ$

2.  $60^\circ$

3.  $45^\circ$

4.  $30^\circ$

Question Type : MCQ

Question ID : 3713516698

Option 1 ID : 37135166792

Option 2 ID : 37135166791

Option 3 ID : 37135166790

Option 4 ID : 37135166789

Status : Answered

Chosen Option : 4

Q.44

$$\int_0^5 \frac{dx}{x^2 + 2x + 10}$$

Ans

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

2.  $\frac{\pi}{12}$

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

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

Question Type : MCQ

Question ID : 37135116654

Option 1 ID : 37135166615

Option 2 ID : 37135166616

Option 3 ID : 37135166613

Option 4 ID : 37135166614

Status : Answered

Chosen Option : 3

Q.45 The volume of a tetrahedron whose vertices are  $A \equiv (-1, 2, 3)$ ,  $B \equiv (3, -2, 1)$ ,  $C \equiv (2, 1, 3)$  and  $D \equiv (-1, -2, 4)$  is

Ans

1.  $\frac{14}{3}$  cu. units

2.  $\frac{16}{3}$  cu. units

3.  $\frac{17}{3}$  cu. units

4.  $\frac{15}{3}$  cu. units

Question Type : MCQ

Question ID : 3713516687

Option 1 ID : 37135166745

Option 2 ID : 37135166747

Option 3 ID : 37135166748

Option 4 ID : 37135166746

Status : Answered

Chosen Option : 2

Q.46 If rectangles are inscribed in a circle of radius  $r$  units. Then the dimensions of the rectangle which has maximum area are

Ans

✗ 1.  $2r$  units ,  $r$  units,

✗ 2.  $2r$  units ,  $\sqrt{2}r$  units,

✗ 3.  $r$  units ,  $\sqrt{2}r$  units,

✓ 4.  $\sqrt{2}r$  units ,  $\sqrt{2}r$  units,

Question Type : MCQ

Question ID : 3713516663

Option 1 ID : 37135166652

Option 2 ID : 37135166651

Option 3 ID : 37135166650

Option 4 ID : 37135166649

Status : Answered

Chosen Option : 4

Q.47 If a point P on the line segment joining the points (3, 5, -1) and (6, 3, -2) has its y - coordinate 2, then its z - coordinate is

Ans

1.  $\frac{2}{15}$

2.  $\frac{17}{3}$

3.  $\frac{15}{2}$

4.  $\frac{3}{17}$

Question Type : MCQ

Question ID : 37135116699

Option 1 ID : 37135166793

Option 2 ID : 37135166794

Option 3 ID : 37135166795

Option 4 ID : 37135166796

Status : Answered

Chosen Option : 3

Q.48 The entries in the last column of the truth table for  $\sim(p \wedge q)$  are

Ans

1. F F T T

2. T F F F

3. F T T T

4. T T F F

Question Type : MCQ

Question ID : 37135116666

Option 1 ID : 37135166664

Option 2 ID : 37135166662

Option 3 ID : 37135166661

Option 4 ID : 37135166663

Status : Answered

Chosen Option : 3



Q.49 If A, B, C are angles of a  $\Delta ABC$ , then  $\tan 2A + \tan 2B + \tan 2C =$

Ans

1.  $\tan 2A \tan 3B \tan 2C$

2.  $\tan 2A \tan 2B \tan 2C$

3.  $\tan A \tan B \tan C$

4.  $\tan 3A \tan 2B \tan 2C$

Question Type : MCQ

Question ID : 37135116683

Option 1 ID : 37135166732

Option 2 ID : 37135166730

Option 3 ID : 37135166729

Option 4 ID : 37135166731

Status : Answered

Chosen Option : 2

Q.50 The growth of population is proportional to the number present. If the population of a colony doubles in 50 years, then the population will become triple in \_\_\_\_ years

Ans

1.  $5 \left( \frac{\log 2}{\log 3} \right)$  yrs

2.  $50 \left( \frac{\log 3}{\log 2} \right)$  yrs

3.  $5 \left( \frac{\log 3}{\log 2} \right)$  yrs

4.  $50 \left( \frac{\log 2}{\log 3} \right)$  yrs

Question Type : MCQ

Question ID : 3713516659

Option 1 ID : 37135166636

Option 2 ID : 37135166633

Option 3 ID : 37135166635

Option 4 ID : 37135166634

Status : Answered

Chosen Option : 2