

Q.1 A mass 'm' is tied to one end of a spring and whirled in a horizontal circle with constant angular velocity. The elongation in the spring is 1 cm. If the angular speed is doubled, the elongation in the spring is 6 cm. The original length of the spring is

Ans

☒ 1. 3 cm

☒ 2. 9 cm

☒ 3. 6 cm

☒ 4. 12 cm

Question Type : MCQ

Question ID : 37135115809

Option 1 ID : 37135163233

Option 2 ID : 37135163235

Option 3 ID : 37135163234

Option 4 ID : 37135163236

Status : Answered

Chosen Option : 2

Q.2

A donor impurity results in

Ans

 1.

conduction band just above the filled valence band.

 2.

holes as majority carriers and electrons as minority carriers.

 3.

production of n-type semiconductor.

 4.

production of p-type semiconductor.

Question Type : MCQ

Question ID : 37135115832

Option 1 ID : 37135163325

Option 2 ID : 37135163328

Option 3 ID : 37135163326

Option 4 ID : 37135163327

Status : Answered

Chosen Option : 3

Q.3 A particle performs S.H.M. with amplitude 'A'. Its speed is tripled at the instant when it is at a distance of $\frac{2A}{3}$ from the mean position. The new amplitude of the motion is

Ans

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

 2. $\frac{7A}{3}$

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

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

Question Type : **MCQ**

Question ID : **37135115816**

Option 1 ID : **37135163263**

Option 2 ID : **37135163264**

Option 3 ID : **37135163262**

Option 4 ID : **37135163261**

Status : **Answered**

Chosen Option : **1**

Q.4 A Fraunhofer diffraction pattern due to a single slit of width 0.3 mm is obtained on a screen placed at a distance of 3 m from the slit. The first minima lie at 5.5 mm on either side of the central maximum on the screen. The wavelength of light used is

Ans

☒ 1. $6000 \text{ \AA}$

☒ 2. $5500 \text{ \AA}$

☒ 3. $4500 \text{ \AA}$

☒ 4. $5000 \text{ \AA}$

Question Type : **MCQ**

Question ID : **37135115804**

Option 1 ID : **37135163216**

Option 2 ID : **37135163215**

Option 3 ID : **37135163213**

Option 4 ID : **37135163214**

Status : **Answered**

Chosen Option : **2**

Q.5 One end of thick horizontal copper wire of length ' $2L$ ' and radius ' $2R$ ' is welded to an end of another thin horizontal copper wire of length ' L ' and radius ' R '. When they are stretched by applying same force at two ends, the ratio of the elongation in the thick wire to that in thin wire is

Ans

☒ 1. $1 : 2$

☒ 2. $4 : 1$

☒ 3. $2 : 1$

☒ 4. $1 : 1$

Question Type : **MCQ**

Question ID : **37135115821**

Option 1 ID : **37135163282**

Option 2 ID : **37135163284**

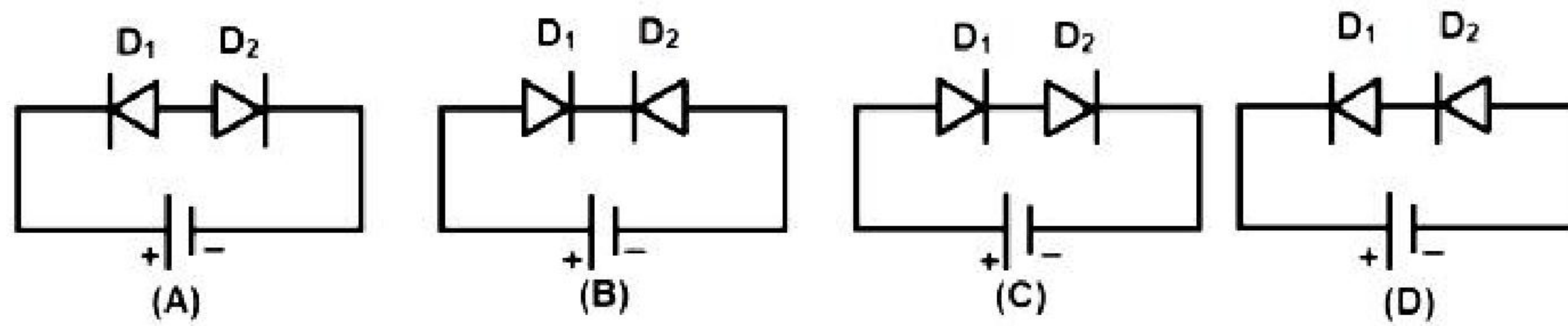
Option 3 ID : **37135163281**

Option 4 ID : **37135163283**

Status : **Answered**

Chosen Option : **1**

Q.6 The non-zero potential difference across diode D_1 and that across diode D_2 are equal in the circuit shown in the figure (both the diodes are identical in characteristics)



Ans

☒ 1. (A)

☒ 2. (B)

☒ 3. (D)

☒ 4. (C)

Question Type : MCQ

Question ID : 37135115806

Option 1 ID : 37135163221

Option 2 ID : 37135163222

Option 3 ID : 37135163224

Option 4 ID : 37135163223

Status : Answered

Chosen Option : 4

Q.7 If $\vec{A} = 3\hat{i} - 2\hat{j} + \hat{k}$, $\vec{B} = \hat{i} - 3\hat{j} + 5\hat{k}$ and $\vec{C} = 2\hat{i} + \hat{j} - 4\hat{k}$ form a right angled triangle then out of the following which one is satisfied?

Ans

☒ 1. $\vec{B} = \vec{A} + \vec{C}, B^2 = A^2 + C^2$

☒ 2. $\vec{A} = \vec{B} + \vec{C}, B^2 = A^2 - C^2$

☒ 3. $\vec{C} = \vec{A} + \vec{B}, C^2 = A^2 + B^2$

☒ 4. $\vec{A} = \vec{B} + \vec{C}, B^2 = A^2 + C^2$

Question Type : MCQ

Question ID : 37135115813

Option 1 ID : 37135163249

Option 2 ID : 37135163251

Option 3 ID : 37135163250

Option 4 ID : 37135163252

Status : Answered

Chosen Option : 1

Q.8 Two springs of spring constants 'K' and '2K' are stretched by same force. If 'w₁' and 'w₂' are the energies stored in them respectively then

Ans

☒ 1. $w_1 = 2w_2$

☒ 2. $w_1 = \frac{w_2}{4}$

☒ 3. $w_2 = 2w_1$

☒ 4. $w_1 = w_2$

Question Type : MCQ

Question ID : 37135115811

Option 1 ID : 37135163241

Option 2 ID : 37135163244

Option 3 ID : 37135163242

Option 4 ID : 37135163243

Status : Answered

Chosen Option : 1

Q.9

A glass slab of thickness 4 cm contains the same number of waves as in 'x' cm of water column when both are transversed by the same monochromatic light. If the refractive indices of glass and water for that light are $\frac{5}{3}$ and $\frac{4}{3}$ respectively, the value of x will be

Ans

 1. $\frac{9}{20}$ cm

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

 3. 5 cm

 4. $\frac{20}{9}$ cm

Question Type : MCQ

Question ID : 37135115850

Option 1 ID : 37135163398

Option 2 ID : 37135163399

Option 3 ID : 37135163400

Option 4 ID : 37135163397

Status : Answered

Chosen Option : 3

Q.10 A toroidal solenoid with air core has an average radius 'R', number of turns 'N' and area of cross-section 'A'. The self-inductance of the solenoid is (Neglect the field variation across the cross-section of the toroid)

Ans

 1. $\frac{\mu_0 N^2 A}{R}$

 2. $\frac{\mu_0 N^2 A}{2\pi R}$

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

 4. $\frac{\mu_0 NA}{R}$

Question Type : MCQ

Question ID : 37135115812

Option 1 ID : 37135163248

Option 2 ID : 37135163247

Option 3 ID : 37135163246

Option 4 ID : 37135163245

Status : Answered

Chosen Option : 2

Q.11 The length of a potentiometer wire is 'L'. A cell of e.m.f. 'E' is balanced at a length ' $\frac{L}{5}$ ' from the positive end of the wire. If the length of the wire is increased by ' $\frac{L}{2}$ ', at what distance will the same cell give a balance point? '

Ans

 1. $\frac{5L}{12}$

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

 3. $\frac{4L}{15}$

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

Question Type : MCQ

Question ID : 37135115810

Option 1 ID : 37135163240

Option 2 ID : 37135163238

Option 3 ID : 37135163239

Option 4 ID : 37135163237

Status : Answered

Chosen Option : 4

Q.12 $\vec{A}$ and $\vec{B}$ are two non-zero vectors inclined at an angle ' θ '. $\hat{a}$ and $\hat{b}$ are unit vectors along $\vec{A}$ and $\vec{B}$ respectively. The component of $\vec{A}$ in the direction of $\vec{B}$ is

Ans

 1. $\frac{\vec{A} \cdot \vec{B}}{B}$

 2. $\frac{\vec{A} \times \vec{B}}{A}$

 3. $\hat{a} \cdot \vec{B}$

 4. $\vec{A} \cdot \hat{b}$

Question Type : MCQ

Question ID : 37135115823

Option 1 ID : 37135163289

Option 2 ID : 37135163290

Option 3 ID : 37135163291

Option 4 ID : 37135163292

Status : Answered

Chosen Option : 4

Q.13

An electron accelerated through potential difference 'V' passes through a uniform transverse magnetic field and experiences a force 'F'. If the accelerating potential is increased to '2V', the electron in the same magnetic field will experience a force

Ans

☐ 1. $3 F$

☐ 2. F

☒ 3. $\sqrt{2} F$

☐ 4. $\frac{F}{2}$

Question Type : MCQ

Question ID : 37135115845

Option 1 ID : 37135163380

Option 2 ID : 37135163378

Option 3 ID : 37135163379

Option 4 ID : 37135163377

Status : Answered

Chosen Option : 3

Q.14

Binding energy of a revolving satellite at height h is 3.5×10^8 J. Its potential energy is

Ans

☐ 1. 7.0×10^8 J

☒ 2. -7.0×10^8 J

☐ 3. -3.5×10^8 J

☐ 4. 3.5×10^8 J

Question Type : MCQ

Question ID : 37135115807

Option 1 ID : 37135163228

Option 2 ID : 37135163227

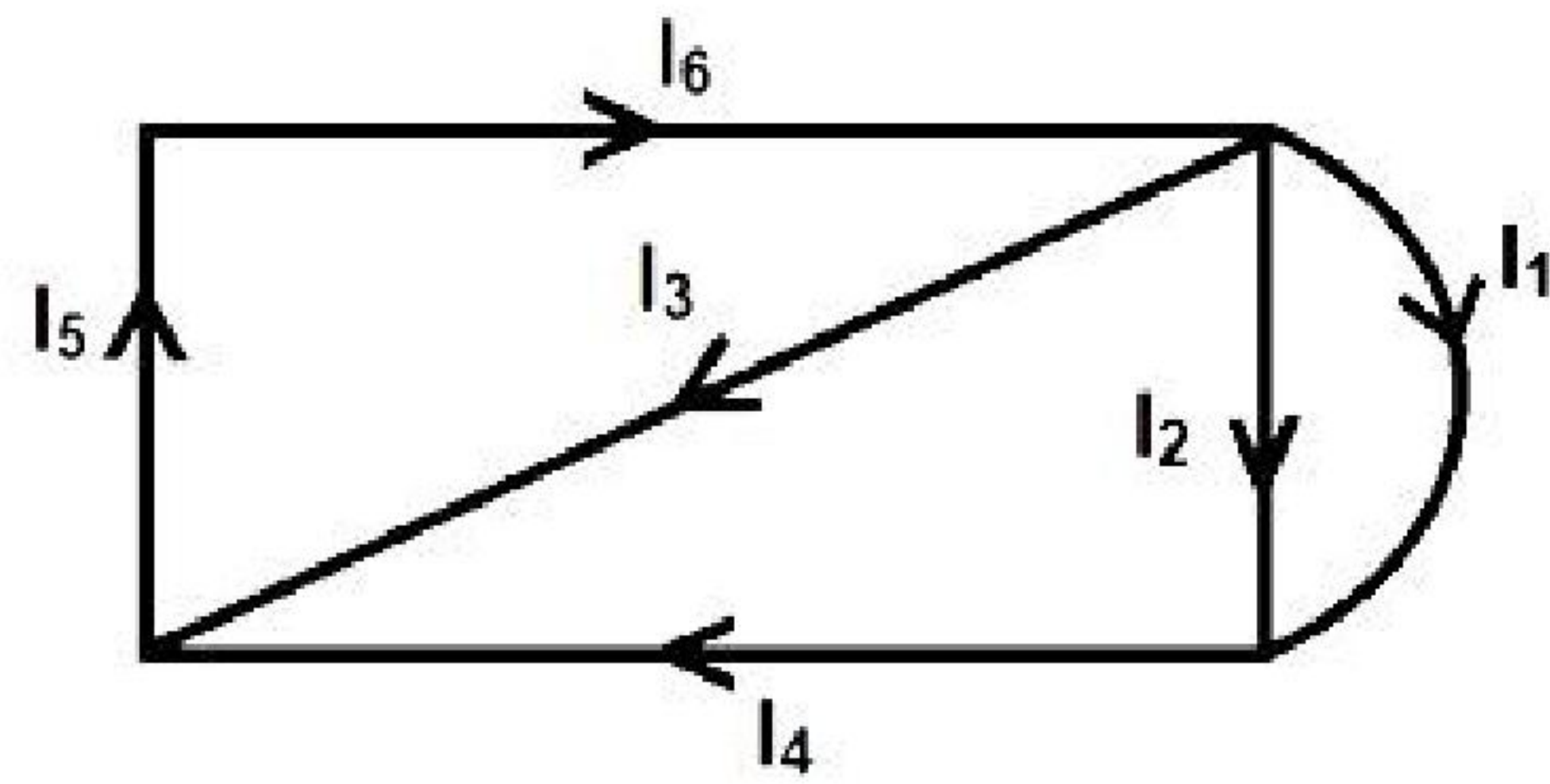
Option 3 ID : 37135163225

Option 4 ID : 37135163226

Status : Answered

Chosen Option : 2

Q.15 In the following network, $I_1 = -0.4A$, $I_4 = 1A$ and $I_5 = 0.4A$. The values of I_2 , I_3 and I_6 respectively are



Ans

☒ 1. $0.4 A, -0.6 A, 1.4 A$

☒ 2. $-0.6 A, 1.4 A, 0.4 A$

☒ 3. $1.4 A, 0.4 A, -0.6 A$

☒ 4. $1.4 A, -0.6 A, 0.4 A$

Question Type : MCQ

Question ID : 37135115827

Option 1 ID : 37135163305

Option 2 ID : 37135163306

Option 3 ID : 37135163308

Option 4 ID : 37135163307

Status : Answered

Chosen Option : 4

Q.16 When an electron in a hydrogen atom jumps from the third orbit to the second orbit, it emits a photon of wavelength ' λ '. When it jumps from the fourth orbit to third orbit, the wavelength emitted by the photon will be

Ans

 1. $\frac{20}{13} \lambda$

 2. $\frac{16}{25} \lambda$

 3. $\frac{9}{16} \lambda$

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

Question Type : MCQ

Question ID : 37135115815

Option 1 ID : 37135163259

Option 2 ID : 37135163258

Option 3 ID : 37135163257

Option 4 ID : 37135163260

Status : Answered

Chosen Option : 4

Q.17

In Young's double slit experiment, the 6th maximum with wavelength ' λ_1 ' is at a distance ' d_1 ' from the central maximum and the 4th maximum with wavelength λ_2 is at distance d_2 . Then $\frac{d_1}{d_2}$ is

Ans

 1. $\frac{2}{3} \frac{\lambda_1}{\lambda_2}$

 2. $\frac{3}{2} \frac{\lambda_1}{\lambda_2}$

 3. $\frac{2}{3} \frac{\lambda_2}{\lambda_1}$

 4. $\frac{3}{2} \frac{\lambda_2}{\lambda_1}$

Question Type : MCQ

Question ID : 37135115835

Option 1 ID : 37135163340

Option 2 ID : 37135163339

Option 3 ID : 37135163338

Option 4 ID : 37135163337

Status : Answered

Chosen Option : 1

Q.18

If 'E', 'M', 'L' and 'G' denote energy, mass, angular momentum and constant of gravitaion respectively then $\left(\frac{EL^2}{G^2M^5}\right)$ has dimensions of

Ans

✓ 1. angle

✗ 2. acceleration

✗ 3. velocity

✗ 4. time

Question Type : MCQ

Question ID : 37135115803

Option 1 ID : 37135163212

Option 2 ID : 37135163211

Option 3 ID : 37135163210

Option 4 ID : 37135163209

Status : Answered

Chosen Option : 3

Q.19 A circular coil of radius 'R' carries an electric current 'I'. The magnetic field due to the coil at a point on the axis of the coil located at a distance 'r' from the centre of the coil, such that $r \gg R$, the magnetic field at that point is proportional to

Ans

✓ 1. $\frac{1}{r^3}$

✗ 2. $\frac{1}{r}$

✗ 3. $\frac{1}{r^4}$

✗ 4. $\frac{1}{r^2}$

Question Type : **MCQ**

Question ID : **37135115818**

Option 1 ID : **37135163270**

Option 2 ID : **37135163272**

Option 3 ID : **37135163269**

Option 4 ID : **37135163271**

Status : **Answered**

Chosen Option : **1**

Q.20 A body of mass 'M' moving with velocity 'V' explodes into two equal parts. If one part comes to rest and the other part moves with velocity ' v_0 ', what would be the value of ' v_0 ' ?

Ans

 1. V

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

 3. $2V$

 4. $4V$

Question Type : MCQ

Question ID : 37135115833

Option 1 ID : 37135163330

Option 2 ID : 37135163329

Option 3 ID : 37135163331

Option 4 ID : 37135163332

Status : Answered

Chosen Option : 1

Q.21 At what temperature is the R.M.S. velocity of Hydrogen molecule equal to that of an oxygen molecule at 47°C ?

(Molecular weight of hydrogen = 2, Molecular weight of oxygen = 32)

Ans

 1. 80 K

 2. 20 K

 3. 40 K

 4. 60 K

Question Type : MCQ

Question ID : 37135115846

Option 1 ID : 37135163384

Option 2 ID : 37135163381

Option 3 ID : 37135163382

Option 4 ID : 37135163383

Status : Answered

Chosen Option : 2

Q.22 Earth revolves round the sun in a circular orbit of radius 'R'. The angular momentum of the revolving earth is directly proportional to

Ans

☐ 1. R^2

☐ 2. R^3

☐ 3. R

☒ 4. $\sqrt{R}$

Question Type : MCQ

Question ID : 37135115834

Option 1 ID : 37135163335

Option 2 ID : 37135163336

Option 3 ID : 37135163334

Option 4 ID : 37135163333

Status : Answered

Chosen Option : 3

Q.23 If 'N' is the number of turns in a circular coil, the value of its self inductance varies as

Ans

☐ 1. N^3

☒ 2. N^2

☐ 3. N^0

☐ 4. N^1

Question Type : MCQ

Question ID : 37135115830

Option 1 ID : 37135163320

Option 2 ID : 37135163319

Option 3 ID : 37135163317

Option 4 ID : 37135163318

Status : Answered

Chosen Option : 4

Q.24 From a uniform circular thin disc of mass $9M$ and radius R , a small disc of radius $\frac{R}{3}$ is removed. The centre of the small disc is at a distance $\frac{2R}{3}$ from the centre of original disc. The moment of inertia of the remaining disc about an axis perpendicular to the plane of the disc and passing through the centre of the disc of radius R is

Ans

✓ 1. $4MR^2$

✗ 2. $3MR^2$

✗ 3. $\frac{MR^2}{2}$

✗ 4. MR^2

Question Type : MCQ

Question ID : 37135115805

Option 1 ID : 37135163220

Option 2 ID : 37135163219

Option 3 ID : 37135163217

Option 4 ID : 37135163218

Status : Answered

Chosen Option : 2

Q.25 A biconvex lens ($R_1 = R_2 = 20 \text{ cm}$) has focal length equal to focal length of concave mirror. The radius of curvature of concave mirror is [R.I. of glass lens = 1.5]

Ans

✓¹ -40 cm

✗² -20 cm

✗³ 40 cm

✗⁴ 20 cm

Question Type : MCQ

Question ID : 37135115848

Option 1 ID : 37135163391

Option 2 ID : 37135163390

Option 3 ID : 37135163392

Option 4 ID : 37135163389

Status : Answered

Chosen Option : 3

Q.26 With what velocity an observer should move relative to a stationary source so that a sound of double the frequency of source is heard by an observer?

Ans ✗¹

Half the velocity of sound towards the source.

✗²

Same as velocity of sound away from the source.

✗³

Twice the velocity of sound towards the source.

✓⁴

Same as velocity of sound towards the source.

Question Type : MCQ

Question ID : 37135115814

Option 1 ID : 37135163255

Option 2 ID : 37135163254

Option 3 ID : 37135163256

Option 4 ID : 37135163253

Status : Answered

Chosen Option : 2

Q.27 Water flows through a horizontal pipe at a speed 'V'. Internal diameter of the pipe is 'd'. If the water is emerging at a speed 'V₁' then the diameter of the nozzle is

Ans

 1. $\frac{V}{V_1}$

 2. $d\sqrt{\frac{V_1}{V}}$

 3. $d\sqrt{\frac{V}{V_1}}$

 4. $\frac{dV_1}{V}$

Question Type : MCQ

Question ID : 37135115838

Option 1 ID : 37135163350

Option 2 ID : 37135163351

Option 3 ID : 37135163352

Option 4 ID : 37135163349

Status : Answered

Chosen Option : 2

Q.28 Water rises upto a height 'h' in a capillary tube on the surface of the earth . The value of 'h' increases, if the capillary tube apparatus is kept

Ans  1.

in a lift going upward with acceleration.

 2. on the sun.

 3. on the poles.

 4.

in a lift going downward with acceleration (a) where $a < g$ (acceleration due to gravity)

Question Type : MCQ

Question ID : 37135115839

Option 1 ID : 37135163355

Option 2 ID : 37135163354

Option 3 ID : 37135163353

Option 4 ID : 37135163356

Status : Answered

Chosen Option : 4

Q.29

Magnetization of the sample is

Ans  1.

net magnetic dipole moment per unit volume.

 2.

volume of the sample per unit magnetic dipole moment.

 3.

ratio of magnetic dipole moment and pole strength.

 4.

ratio of pole strength to magnetic dipole moment.

Question Type : MCQ

Question ID : 37135115802

Option 1 ID : 37135163206

Option 2 ID : 37135163205

Option 3 ID : 37135163207

Option 4 ID : 37135163208

Status : Answered

Chosen Option : 1

Q.30 A signal of frequency 3 kHz is amplitude modulated on a carrier wave of frequency 2.5 MHz. The upper and lower sideband frequencies in the resultant signal are

Ans

 1. 2500 kHz, 2503 kHz

 2. 2503 kHz, 2497 kHz

 3. 2.5 MHz, 3 kHz

 4. 5.5 MHz, 0.5 MHz

Question Type : MCQ

Question ID : 37135115847

Option 1 ID : 37135163387

Option 2 ID : 37135163388

Option 3 ID : 37135163385

Option 4 ID : 37135163386

Status : Answered

Chosen Option : 4

Q.31 In melde's experiment, when the tension decreases by 0.009 kg-wt, the number of loops changes from 4 to 5. The initial tension is

Ans

 1. 0.036 kg-wt.

 2. 0.009 kg-wt.

 3. 0.018 kg-wt.

 4. 0.025 kg-wt.

Question Type : MCQ

Question ID : 37135115826

Option 1 ID : 37135163304

Option 2 ID : 37135163301

Option 3 ID : 37135163302

Option 4 ID : 37135163303

Status : Answered

Chosen Option : 4

Q.32

Inside a bar magnet, the magnetic lines of force

Ans

✓ 1.

are from S-pole to N-pole of the magnet.

✗ 2. do not exist

✗ 3.

depend upon area of cross-section of bar magnet.

✗ 4.

are from N-pole to S-pole of the magnet.

Question Type : MCQ

Question ID : 37135115808

Option 1 ID : 37135163229

Option 2 ID : 37135163231

Option 3 ID : 37135163232

Option 4 ID : 37135163230

Status : Answered

Chosen Option : 1

Q.33

Two identical progressive waves moving in opposite direction superimpose to produce a stationary wave. The wavelength of each progressive wave is ' λ '. The wavelength of the stationary wave is

Ans

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

 2. $\frac{\lambda}{2}$

 3. λ

 4. 2λ

Question Type : MCQ

Question ID : 37135115849

Option 1 ID : 37135163393

Option 2 ID : 37135163394

Option 3 ID : 37135163395

Option 4 ID : 37135163396

Status : Answered

Chosen Option : 3

Q.34 Threshold frequency for a metal is 15×10^{14} Hz. The light of wavelength $6000\text{\AA}$ falls on the metal surface. Which one of the following statements is correct?
[velocity of light, $c = 3 \times 10^8$ m/s]

Ans  1.

photoelectrons are emitted with velocity c .

 2.

photoelectrons come out with velocity 3×10^6 m/s

 3.

photoelectrons come out with zero velocity.

 4.

photoelectrons will not be emitted.

Question Type : MCQ

Question ID : 37135115820

Option 1 ID : 37135163278

Option 2 ID : 37135163280

Option 3 ID : 37135163277

Option 4 ID : 37135163279

Status : Answered

Chosen Option : 4

Q.35 In a system of two particles of masses ' m_1 ' and ' m_2 ', the second particle is moved by a distance ' d ' towards the centre of mass. To keep the centre of mass unchanged, the first particle will have to be moved by a distance

Ans  1.

$\frac{m_1}{m_2} d$, towards the centre of mass.

 2.

$\frac{m_2}{m_1} d$, away from the the centre of mass.

 3.

$\frac{m_2}{m_1} d$, towards the centre of mass.

 4.

$\frac{m_1}{m_2} d$, away from the centre of mass.

Question Type : **MCQ**

Question ID : **37135115828**

Option 1 ID : **37135163311**

Option 2 ID : **37135163310**

Option 3 ID : **37135163309**

Option 4 ID : **37135163312**

Status : **Answered**

Chosen Option : **2**

Q.36 Water rises to a height of 15 mm in a capillary tube having cross-sectional area 'A'.
If cross-sectional area of the tube is made $\frac{A}{3}$ then the water will rise to a height
of

Ans

✓ ^{1.} $15\sqrt{3} \times 10^{-3} \text{ m}$

✗ ^{2.} $20\sqrt{3} \times 10^{-3} \text{ m}$

✗ ^{3.} $5\sqrt{3} \times 10^{-3} \text{ m}$

✗ ^{4.} $10\sqrt{3} \times 10^{-3} \text{ m}$

Question Type : **MCQ**

Question ID : **37135115829**

Option 1 ID : **37135163314**

Option 2 ID : **37135163316**

Option 3 ID : **37135163313**

Option 4 ID : **37135163315**

Status : **Answered**

Chosen Option : **1**

Q.37 A mass M attached to a horizontal spring executes S.H.M. of amplitude A_1 . When the mass M passes through its mean position, then a smaller mass m is placed over it and both of them move together with amplitude A_2 . The ratio of $\left(\frac{A_1}{A_2}\right)$ is

Ans

 1. $\frac{M + m}{M}$

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

 3. $\left(\frac{M + m}{M}\right) \frac{1}{2}$

 4. $\frac{M}{M + m}$

Question Type : **MCQ**

Question ID : **37135115844**

Option 1 ID : **37135163374**

Option 2 ID : **37135163375**

Option 3 ID : **37135163376**

Option 4 ID : **37135163373**

Status : **Answered**

Chosen Option : **2**

Q.38 The dimensions of Planck's constant are same as the product of

Ans

 1. time and displacement.

 2. force and time.

 3. force, displacement and time.

 4. force and displacement.

Question Type : MCQ

Question ID : 37135115842

Option 1 ID : 37135163368

Option 2 ID : 37135163365

Option 3 ID : 37135163366

Option 4 ID : 37135163367

Status : Answered

Chosen Option : 3

Q.39 A metal rod of cross-sectional area $3 \times 10^{-6} \text{ m}^2$ is suspended vertically from one end has a length 0.4 m at 100°C . Now the rod is cooled upto 0°C , but prevented from contracting by attaching a mass 'm' at the lower end. The value of 'm' is ($Y = 10^{11} \text{ N/m}^2$, coefficient of linear expansion $= 10^{-5} / \text{K}$, $g = 10 \text{ m/s}^2$)

Ans

 1. 40 kg

 2. 20 kg

 3. 30 kg

 4. 10 kg

Question Type : MCQ

Question ID : 37135115836

Option 1 ID : 37135163344

Option 2 ID : 37135163342

Option 3 ID : 37135163343

Option 4 ID : 37135163341

Status : Answered

Chosen Option : 3

Q.40 A closed organ pipe and an open organ pipe have their first overtones identical in frequency. Their lengths are in the ratio

Ans

✓ ^{1.} 3 : 4

✗ ^{2.} 2 : 3

✗ ^{3.} 4 : 5

✗ ^{4.} 1 : 2

Question Type : MCQ

Question ID : 37135115819

Option 1 ID : 37135163275

Option 2 ID : 37135163274

Option 3 ID : 37135163276

Option 4 ID : 37135163273

Status : Answered

Chosen Option : 1

Q.41 Three condensers of capacities C_1 , C_2 , C_3 are connected in series with a source of e.m.f. V . The potentials across the three condensers are in the ratio of

Ans

✗ ^{1.} $C_1 : C_2 : C_3$

✗ ^{2.} $C_1^2 : C_2^2 : C_3^2$

✗ ^{3.} 1 : 1 : 1

✓ ^{4.} $\frac{1}{C_1} : \frac{1}{C_2} : \frac{1}{C_3}$

Question Type : MCQ

Question ID : 37135115817

Option 1 ID : 37135163266

Option 2 ID : 37135163267

Option 3 ID : 37135163265

Option 4 ID : 37135163268

Status : Answered

Chosen Option : 4

Q.42 Four capacitors of equal capacity have an equivalent capacitance C_1 when connected in series and an equivalent capacitance C_2 when connected in parallel.

The ratio $\frac{C_2}{C_1}$, is

Ans

☒ 1. 4

☒ 2. 12

☒ 3. 16

☒ 4. 8

Question Type : MCQ

Question ID : 37135115840

Option 1 ID : 37135163357

Option 2 ID : 37135163359

Option 3 ID : 37135163360

Option 4 ID : 37135163358

Status : Answered

Chosen Option : 3

Q.43 A ring and a disc have same mass and same radius. The ratio of moment of inertia of a ring about a tangent in its plane to that of the disc about its diameter is

Ans

☒ 1. 6 : 1

☒ 2. 4 : 1

☒ 3. 2 : 1

☒ 4. 8 : 1

Question Type : MCQ

Question ID : 37135115801

Option 1 ID : 37135163203

Option 2 ID : 37135163202

Option 3 ID : 37135163201

Option 4 ID : 37135163204

Status : Answered

Chosen Option : 1

Q.44

A bar magnet of magnetic moment 5 Am^2 is placed in a uniform magnetic induction $3 \times 10^{-5} \text{ T}$. If each pole of a magnet experiences a force of $2.5 \times 10^{-4} \text{ N}$ then the magnetic length of the magnet is

Ans

 1. 0.8 m

 2. 0.2 m

 3. 0.6 m

 4. 0.4 m

Question Type : MCQ

Question ID : 37135115837

Option 1 ID : 37135163348

Option 2 ID : 37135163345

Option 3 ID : 37135163347

Option 4 ID : 37135163346

Status : Answered

Chosen Option : 3

Q.45

If the kinetic energy of a particle is increased to 16 times its previous value, the percentage change in the de-Broglie wavelength of the particle is

Ans

 1. 75

 2. 25

 3. 50

 4. 5

Question Type : MCQ

Question ID : 37135115825

Option 1 ID : 37135163297

Option 2 ID : 37135163299

Option 3 ID : 37135163298

Option 4 ID : 37135163300

Status : Answered

Chosen Option : 1

Q.46 A black body has maximum wavelength λ_m at temperature 2200 K. Its corresponding wavelength at temperature 3300 K will be

Ans

 1. $\frac{9}{4} \lambda_m$.

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

 3. $\frac{4}{9} \lambda_m$.

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

Question Type : MCQ

Question ID : 37135115831

Option 1 ID : 37135163322

Option 2 ID : 37135163321

Option 3 ID : 37135163324

Option 4 ID : 37135163323

Status : Answered

Chosen Option : 4

Q.47

A particle performing U.C.M. of radius $\frac{\pi}{2}$ m makes 'x' revolutions in time 't'. Its tangential velocity is

Ans

 1. $\frac{\pi t}{x^2}$

 2. $\frac{\pi x^2}{t}$

 3. $\frac{\pi x}{t^2}$

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

Question Type : MCQ

Question ID : 37135115841

Option 1 ID : 37135163363

Option 2 ID : 37135163362

Option 3 ID : 37135163364

Option 4 ID : 37135163361

Status : Answered

Chosen Option : 4

Q.48

Two bodies have their moments of inertia I and 2I respectively about their axes of rotation. If their kinetic energies of rotation are equal, their angular momenta will be in the ratio

Ans

 1. 2 : 1

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

 3. $1 : \sqrt{2}$

 4. 1 : 2

Question Type : MCQ

Question ID : 37135115824

Option 1 ID : 37135163295

Option 2 ID : 37135163296

Option 3 ID : 37135163294

Option 4 ID : 37135163293

Status : Answered

Chosen Option : 3

Q.49 The refractive index of glass is $\frac{3}{2}$ and that of water is $\frac{4}{3}$. The critical angle for a ray of light going from glass to water is

Ans

 1. $\sin^{-1} \left(\frac{4}{7} \right)$

 2. $\sin^{-1} \left(\frac{5}{8} \right)$

 3. $\sin^{-1} \left(\frac{2}{3} \right)$

 4. $\sin^{-1} \left(\frac{8}{9} \right)$

Question Type : MCQ

Question ID : 37135115843

Option 1 ID : 37135163370

Option 2 ID : 37135163371

Option 3 ID : 37135163369

Option 4 ID : 37135163372

Status : Answered

Chosen Option : 4

Q.50 A galvanometer of resistance $100\ \Omega$ requires $10\ \mu\text{A}$ current for full scale deflection. Now a resistance of $1\ \Omega$ is connected to convert it into an ammeter. The minimum current required to obtain full scale deflection is

Ans

 1. 101 mA

 2. 1.01 mA

 3. 11.0 mA

 4. 10.1 mA

Question Type : **MCQ**

Question ID : 37135115822

Option 1 ID : 37135163285

Option 2 ID : 37135163288

Option 3 ID : 37135163286

Option 4 ID : 37135163287

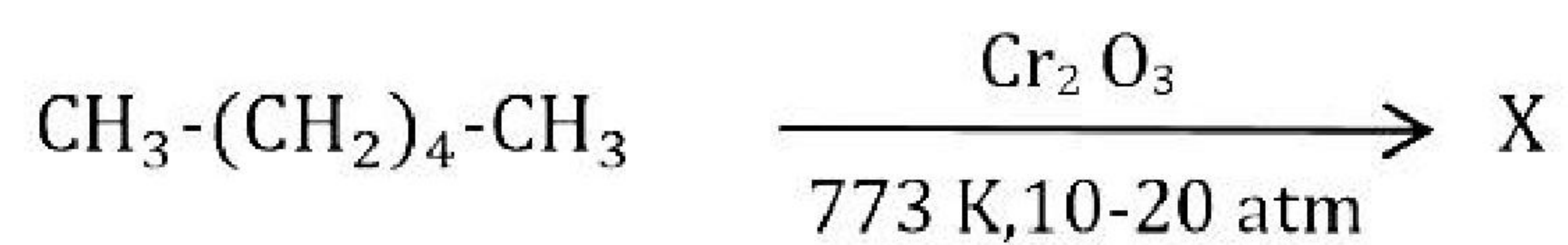
Status : **Answered**

Chosen Option : 2

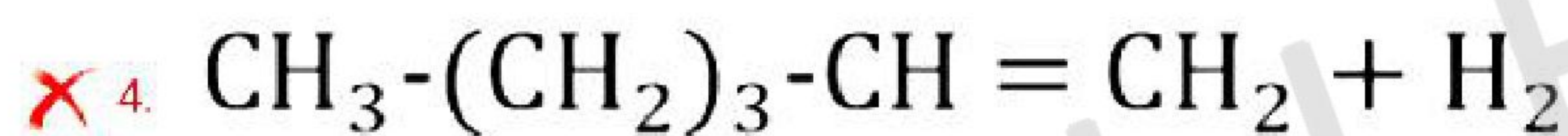
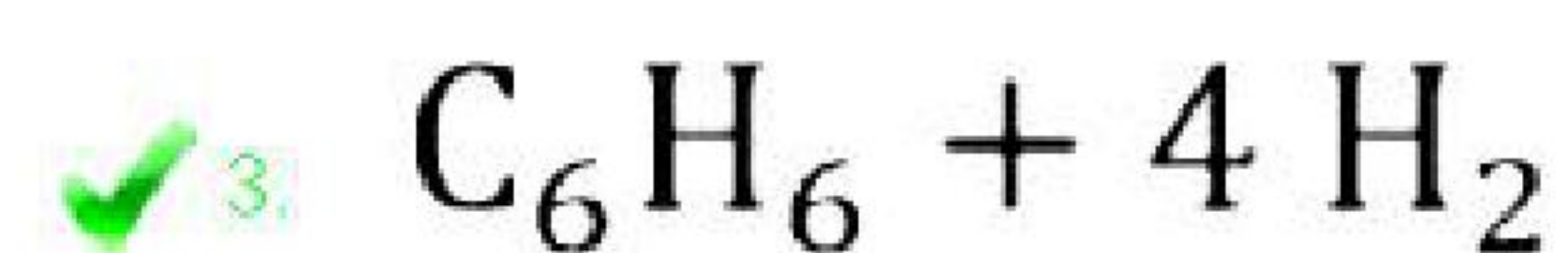
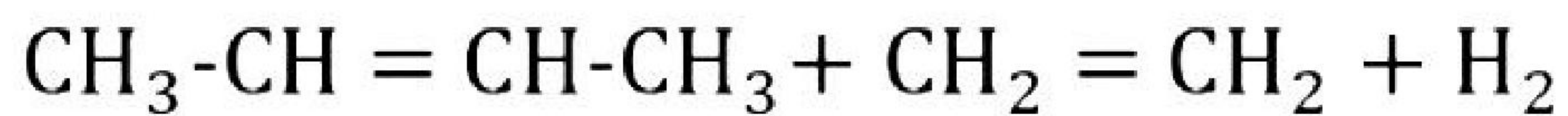
Section: Chemistry

Q.1

Identify the product X obtained in following reaction



Ans  1.



Question Type : MCQ

Question ID : 37135115882

Option 1 ID : 37135163527

Option 2 ID : 37135163525

Option 3 ID : 37135163528

Option 4 ID : 37135163526

Status : Answered

Chosen Option : 1

Q.2 Which element from following forms colourless compounds in +2 oxidation state ?

Ans

 1. Co ($Z = 27$)

 2. Zn ($Z = 30$)

 3. Cu ($Z = 29$)

 4. Mn ($Z = 25$)

Question Type : MCQ

Question ID : 37135115863

Option 1 ID : 37135163450

Option 2 ID : 37135163452

Option 3 ID : 37135163449

Option 4 ID : 37135163451

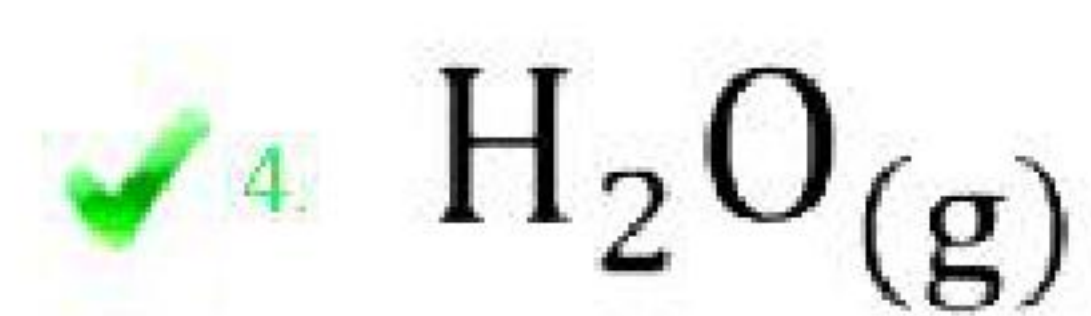
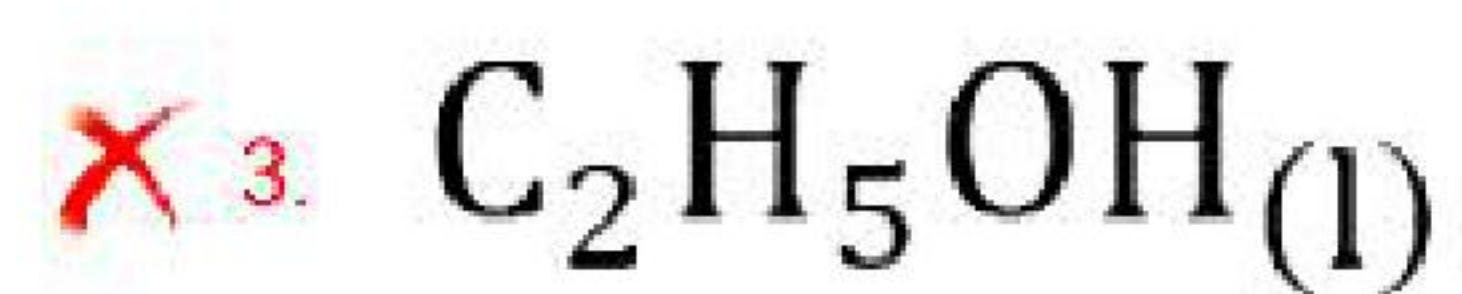
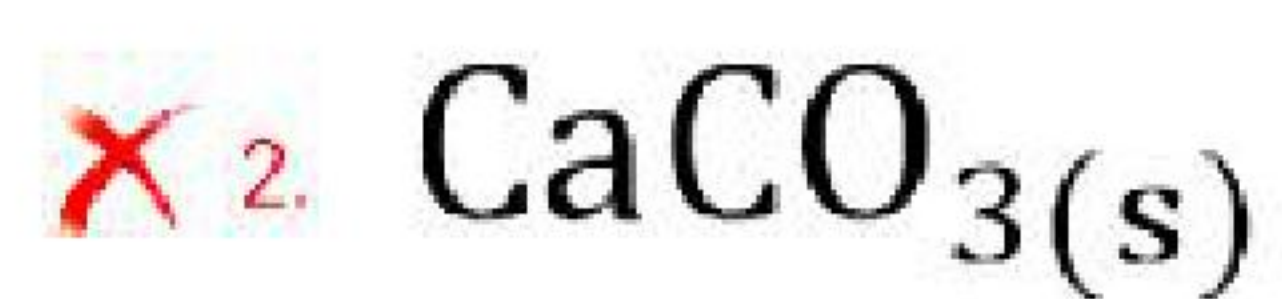
Status : Answered

Chosen Option : 4

Q.3

Which of the following compounds is NOT present in its standard state at 25°C and 1 atmosphere pressure ?

Ans



Question Type : MCQ

Question ID : 37135115883

Option 1 ID : 37135163532

Option 2 ID : 37135163531

Option 3 ID : 37135163529

Option 4 ID : 37135163530

Status : Answered

Chosen Option : 4

Q.4

Which among the following vitamins belongs to aromatic series ?

Ans

 1. Vitamin A

 2. Vitamin C

 3. Vitamin B complex

 4. Vitamin K

Question Type : MCQ

Question ID : 37135115876

Option 1 ID : 37135163502

Option 2 ID : 37135163503

Option 3 ID : 37135163504

Option 4 ID : 37135163501

Status : Answered

Chosen Option : 4

Q.5 The rate law for the reaction $2\text{NO}_{(g)} + \text{O}_{2(g)} \longrightarrow 2\text{NO}_{2(g)}$ is
rate = $k [\text{NO}]^2 [\text{O}_2]$, then which among the following statement is correct ?

Ans  1.

The reaction is first order in O_2 , first order in NO and second order overall.

 2.

The reaction is second order in NO, zero order in O_2 and second order overall.

 3.

The reaction is second order in NO, first order in O_2 and third order overall.

 4.

The reaction is zero order overall.

Question Type : MCQ

Question ID : 37135115875

Option 1 ID : 37135163497

Option 2 ID : 37135163499

Option 3 ID : 37135163498

Option 4 ID : 37135163500

Status : Answered

Chosen Option : 3

Q.6

If 'Q' is the magnitude of charge and 'r' is the distance between the centres of positive and negative charges then dipole moment (μ) is given by

Ans

 1. $\mu = Q + r$

 2. $\mu = Q \times r$

 3. $\mu = \frac{Q}{r}$

 4. $\mu = Q - r$

Question Type : MCQ

Question ID : 37135115855

Option 1 ID : 37135163419

Option 2 ID : 37135163418

Option 3 ID : 37135163417

Option 4 ID : 37135163420

Status : Answered

Chosen Option : 2

Q.7

Which of the following properties of hydrogen is similar to halogen family ?

Ans

✓ 1. Ionisation enthalpy

✗ 2. Formation of unipositive ion

✗ 3. Electronic configuration

✗ 4. Electron gain enthalpy

Question Type : MCQ

Question ID : 37135115889

Option 1 ID : 37135163554

Option 2 ID : 37135163556

Option 3 ID : 37135163553

Option 4 ID : 37135163555

Status : Answered

Chosen Option : 2

Q.8 How many methyl groups are present in n-hexadecyl trimethyl ammonium chloride ?

Ans

 1. 3

 2. 4

 3. 14

 4. 6

Question Type : MCQ

Question ID : 37135115870

Option 1 ID : 37135163477

Option 2 ID : 37135163478

Option 3 ID : 37135163480

Option 4 ID : 37135163479

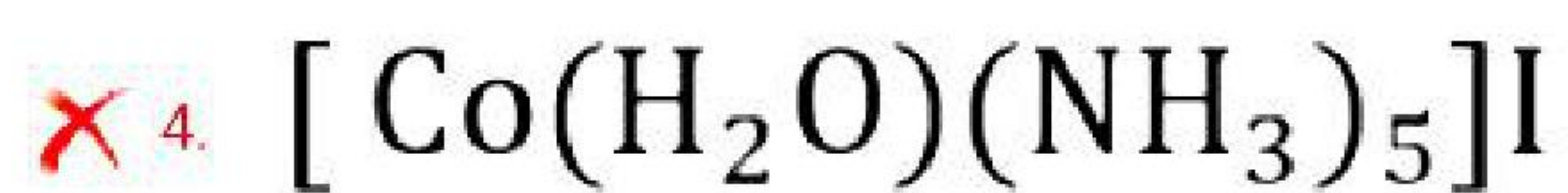
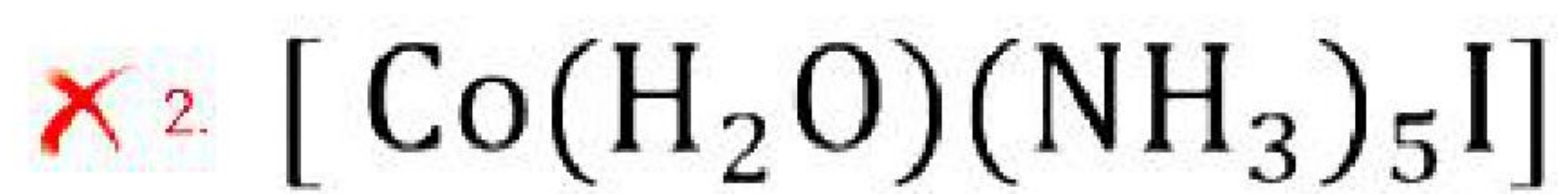
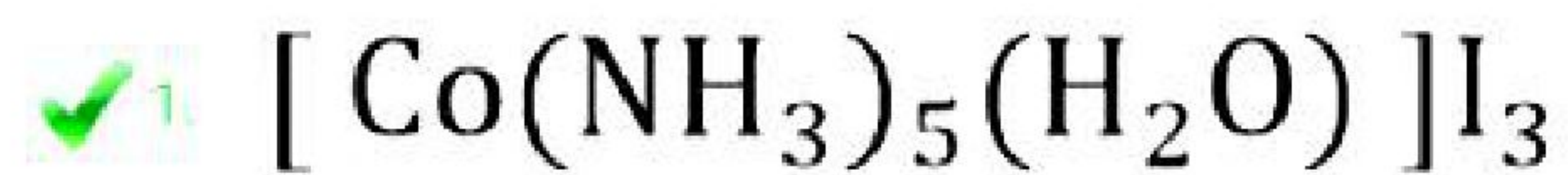
Status : Answered

Chosen Option : 3

Q.9

Which among the following is a correct formula of Pentammine aqua cobalt (III) iodide ?

Ans



Question Type : MCQ

Question ID : 37135115857

Option 1 ID : 37135163427

Option 2 ID : 37135163426

Option 3 ID : 37135163425

Option 4 ID : 37135163428

Status : Answered

Chosen Option : 1

Q.10

The IUPAC name of $\text{CH}_3\text{-CH}_2\text{-O-CH}_2\text{-CH(CH}_3)_2$ is

Ans

 1. 3-Ethoxy-2-methylpropane

 2. 1-Ethoxy butane

 3. 1-Ethoxy-2-methylpropane

 4. 1-Ethoxy isobutane

Question Type : MCQ

Question ID : 37135115885

Option 1 ID : 37135163537

Option 2 ID : 37135163539

Option 3 ID : 37135163538

Option 4 ID : 37135163540

Status : Answered

Chosen Option : 3

Q.11

Which of the following acids, does NOT undergo Hell-Vohlard-Zelinsky reaction ?

Ans

-  1. Butanoic acid
-  2. Propanoic acid
-  3. Ethanoic acid
-  4. Methanoic acid

Question Type : MCQ

Question ID : 37135115856

Option 1 ID : 37135163424

Option 2 ID : 37135163423

Option 3 ID : 37135163422

Option 4 ID : 37135163421

Status : Answered

Chosen Option : 4

Q.12 Which among the following decreasing order of boiling points is correct for amines ?

Ans  1.

Ethyl dimethylamine > Diethylamine > n-Butylamine

 2.

Diethylamine > Ethyl dimethylamine > n-Butylamine

 3.

n-Butylamine > Ethyl dimethylamine > Diethylamine

 4.

n-Butylamine > Diethylamine > Ethyl dimethylamine

Question Type : MCQ

Question ID : 37135115898

Option 1 ID : 37135163589

Option 2 ID : 37135163591

Option 3 ID : 37135163592

Option 4 ID : 37135163590

Status : Answered

Chosen Option : 2

Q.13

Which of the following is obtained by hydrogenation of benzoyl chloride in presence of Pd on BaSO₄ ?

Ans

 1. Benzene

 2. Benzoic acid

 3. Benzyl alcohol

 4. Benzaldehyde

Question Type : MCQ

Question ID : 37135115879

Option 1 ID : 37135163516

Option 2 ID : 37135163514

Option 3 ID : 37135163513

Option 4 ID : 37135163515

Status : Answered

Chosen Option : 4

Q.14

Which of the following oxyacid of chlorine has highest thermal stability ?

Ans

✓ 1. HClO_4

✗ 2. HClO

✗ 3. HClO_3

✗ 4. HClO_2

Question Type : MCQ

Question ID : 37135115892

Option 1 ID : 37135163568

Option 2 ID : 37135163565

Option 3 ID : 37135163567

Option 4 ID : 37135163566

Status : Answered

Chosen Option : 4

Q.15

Which of the following compounds is obtained by dry distillation of calcium propionate ?

Ans

✓ 1. Pentan-3-one

✗ 2. Pentan-2-one

✗ 3. Propanone

✗ 4. Butan-2-one

Question Type : MCQ

Question ID : 37135115861

Option 1 ID : 37135163444

Option 2 ID : 37135163443

Option 3 ID : 37135163441

Option 4 ID : 37135163442

Status : Answered

Chosen Option : 2

Q.16

Which of the following processes for refining of metals involves a principle of selective adsorption of the components from a mixture.

Ans

 1. Electrolytic refining

 2. Chromatography

 3. polling

 4. Zone refining

Question Type : MCQ

Question ID : 37135115873

Option 1 ID : 37135163490

Option 2 ID : 37135163491

Option 3 ID : 37135163492

Option 4 ID : 37135163489

Status : Answered

Chosen Option : 4

Q.17

Which among following processes occurs at 1500 K in blast furnace for extraction of iron ?

Ans

 1. Reduction of ore

 2. Ore loses moisture

 3. Combustion of coke

 4. Slag formation

Question Type : MCQ

Question ID : 37135115896

Option 1 ID : 37135163583

Option 2 ID : 37135163581

Option 3 ID : 37135163584

Option 4 ID : 37135163582

Status : Answered

Chosen Option : 3

Q.18

Which of the following types of valences, according to Werner's theory is also called as primary valence ?

Ans

✓ 1. Ionisable valence

✗ 2. Auxiliary valence

✗ 3. Residual valence

✗ 4. Subsidiary valence

Question Type : MCQ

Question ID : 37135115880

Option 1 ID : 37135163520

Option 2 ID : 37135163517

Option 3 ID : 37135163518

Option 4 ID : 37135163519

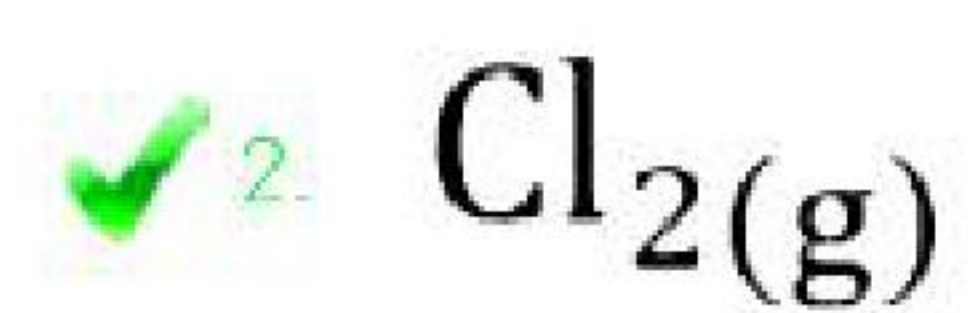
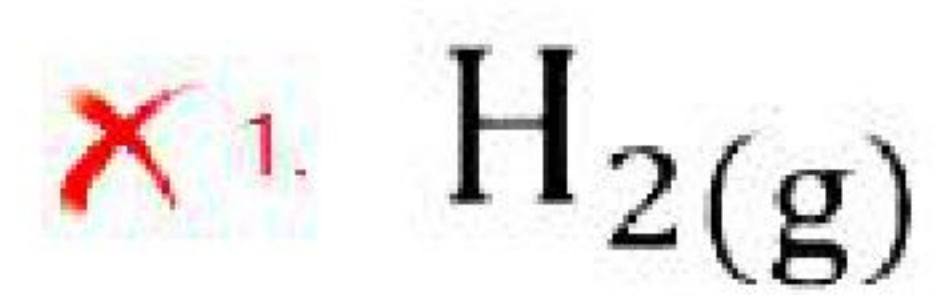
Status : Answered

Chosen Option : 1

Q.19

During the electrolysis of aqueous sodium chloride the product obtained at anode is

Ans



Question Type : MCQ

Question ID : 37135115858

Option 1 ID : 37135163432

Option 2 ID : 37135163429

Option 3 ID : 37135163431

Option 4 ID : 37135163430

Status : Answered

Chosen Option : 2

Q.20

Which among the following is a linear polymer ?

Ans

 1. Melamine

 2. Vulcanised rubber

 3. Polyvinylchloride

 4. Polypropylene

Question Type : MCQ

Question ID : 37135115866

Option 1 ID : 37135163464

Option 2 ID : 37135163462

Option 3 ID : 37135163463

Option 4 ID : 37135163461

Status : Answered

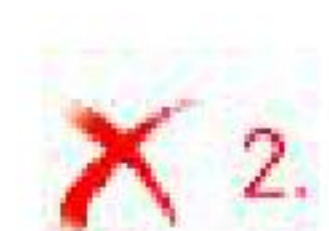
Chosen Option : 3

Q.21

For a reaction $\Delta H = -30 \text{ kJ}$ and $\Delta S = -45 \text{ J K}^{-1}$, at what temperature reaction changes from spontaneous to non spontaneous ?

Ans

 1. 777.0 K

 2. 675.0 K

 3. 666.6 K

 4. 375.0 K

Question Type : MCQ

Question ID : 37135115867

Option 1 ID : 37135163468

Option 2 ID : 37135163467

Option 3 ID : 37135163466

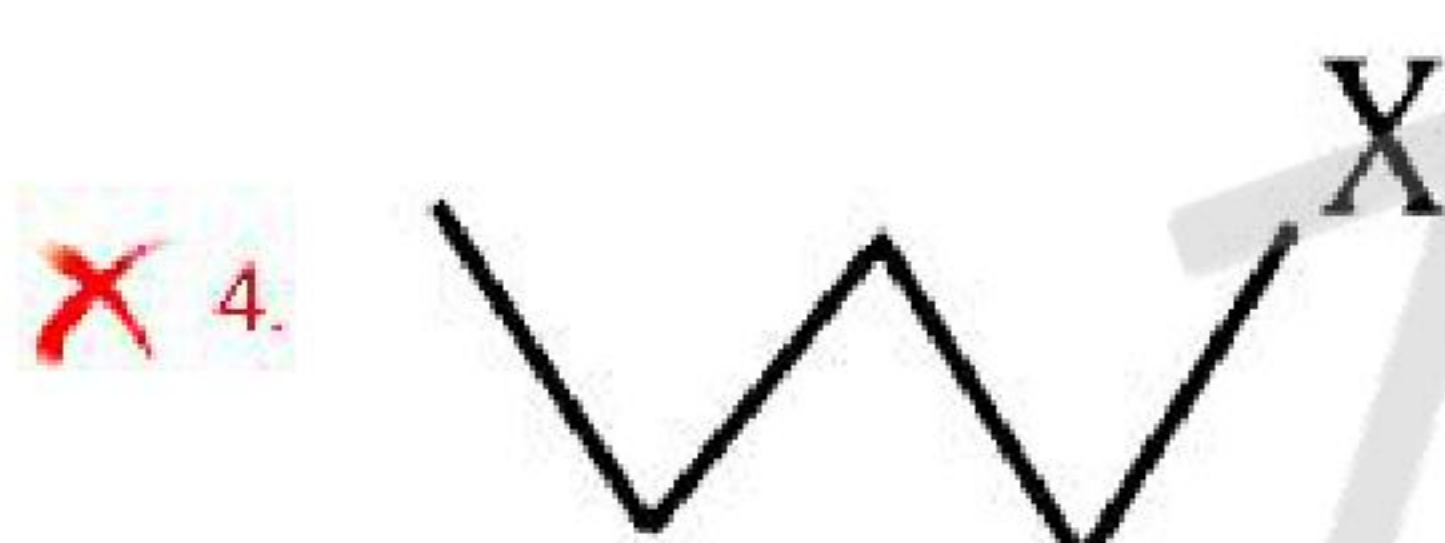
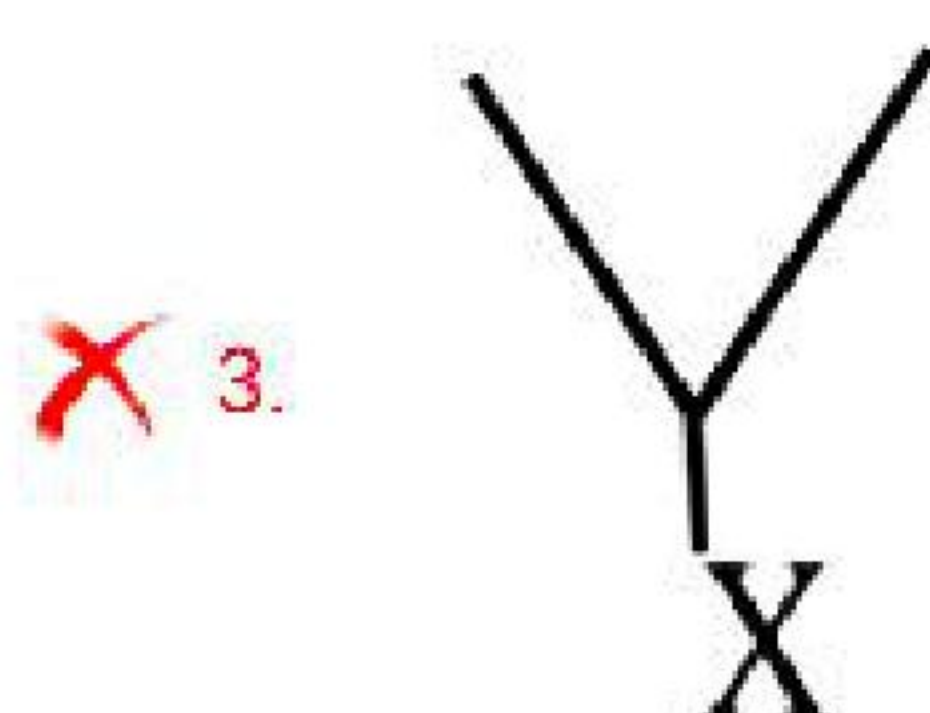
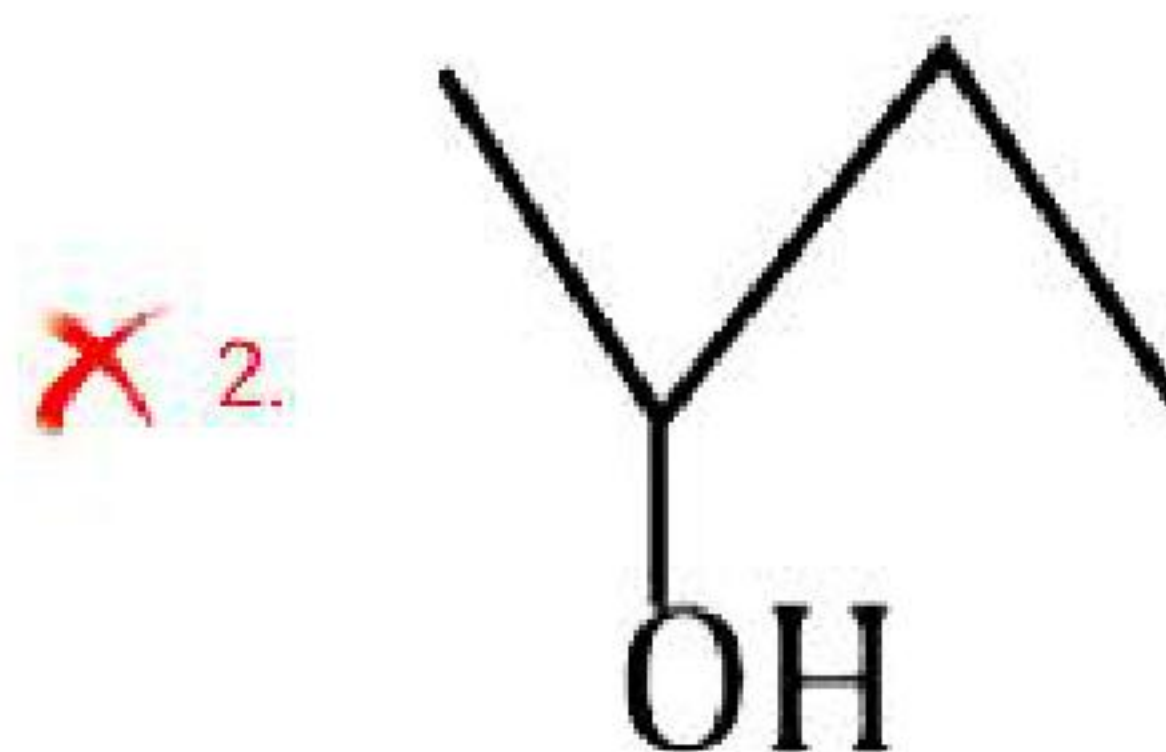
Option 4 ID : 37135163465

Status : Answered

Chosen Option : 3

Q.22 Compound A on reaction with chlorine in presence of u.v. light gives B; which when reacted with NaNO_2 in the solvent N, N-dimethyl formamide, gives 2-Nitrobutane. The compound A is

Ans



Question Type : MCQ

Question ID : 37135115890

Option 1 ID : 37135163559

Option 2 ID : 37135163557

Option 3 ID : 37135163558

Option 4 ID : 37135163560

Status : Answered

Chosen Option : 1

Q.23

Average bond enthalpy of water is $464.5 \text{ kJ mol}^{-1}$. If the energy required to break first O-H bond is 502 kJ mol^{-1} , how much energy per mol is required to break second O-H bond ?

Ans

 1. 929 kJ

 2. 251 kJ

 3. 427 kJ

 4. 678 kJ

Question Type : MCQ

Question ID : 37135115862

Option 1 ID : 37135163448

Option 2 ID : 37135163445

Option 3 ID : 37135163446

Option 4 ID : 37135163447

Status : Answered

Chosen Option : 4

Q.24 Which among the following alkali metal chloride crystallises in form of hydrate?

Ans

✓ 1. LiCl

✗ 2. KCl

✗ 3. CsCl

✗ 4. NaCl

Question Type : MCQ

Question ID : 37135115895

Option 1 ID : 37135163577

Option 2 ID : 37135163579

Option 3 ID : 37135163580

Option 4 ID : 37135163578

Status : Answered

Chosen Option : 1

Q.25

Which of the following polymers is prepared by using phenol ?

Ans

✓ 1. Bakelite

✗ 2. Melamine

✗ 3. Teflon

✗ 4. Neoprene

Question Type : MCQ

Question ID : 37135115872

Option 1 ID : 37135163485

Option 2 ID : 37135163487

Option 3 ID : 37135163486

Option 4 ID : 37135163488

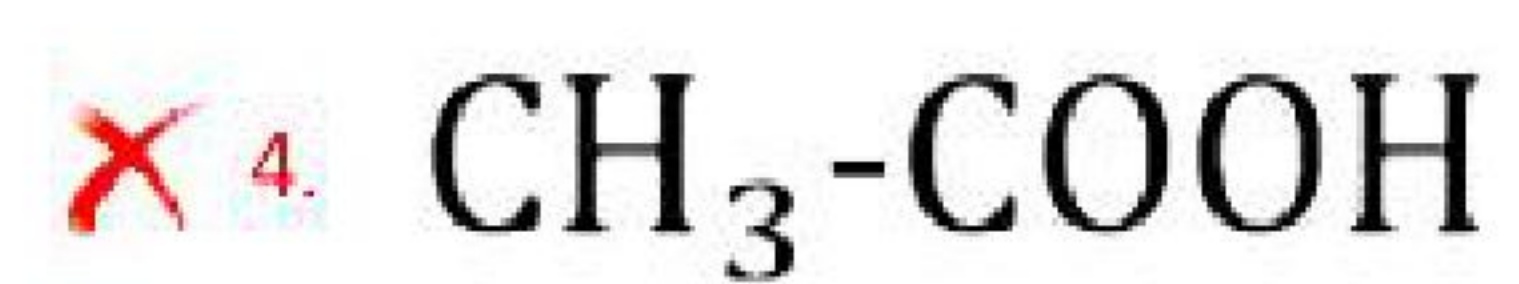
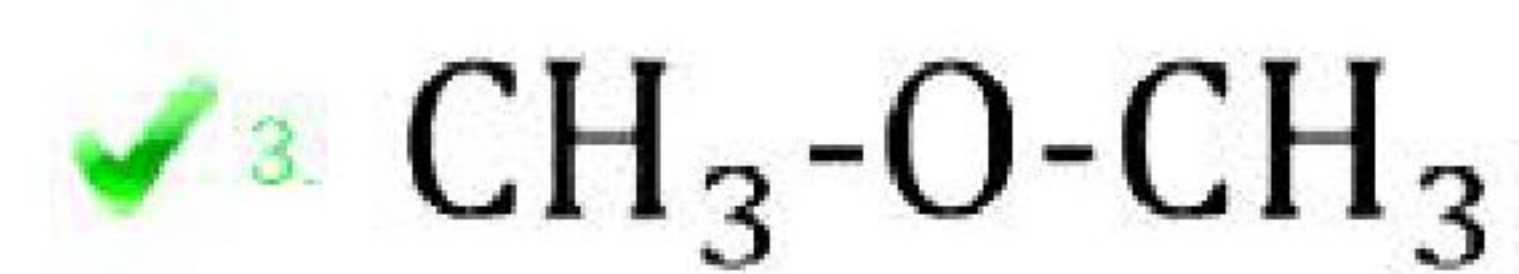
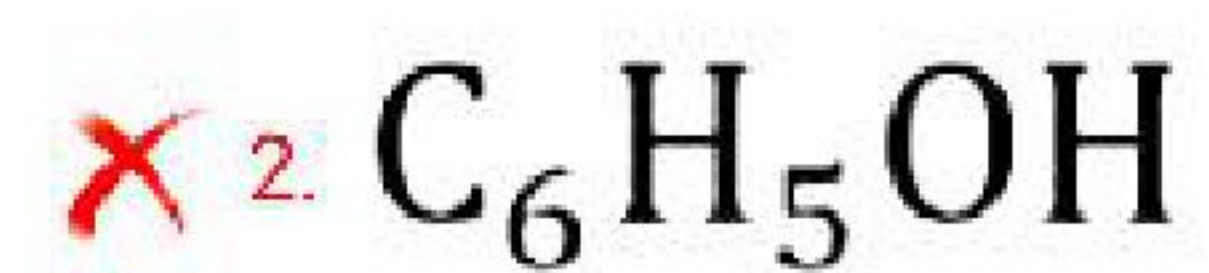
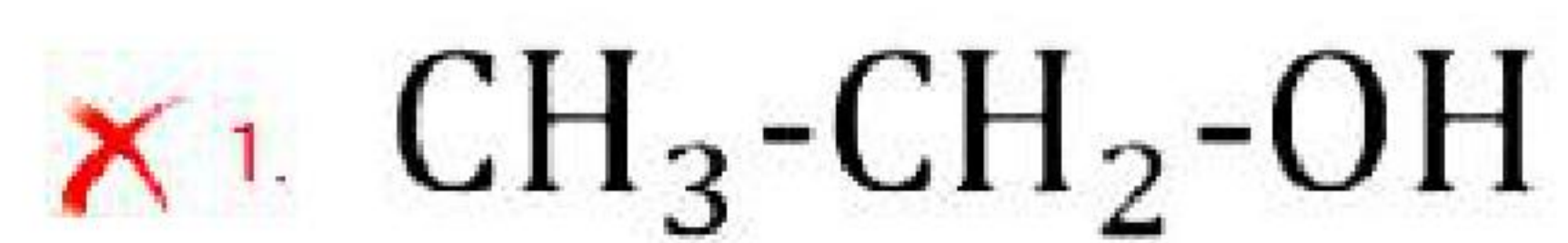
Status : Answered

Chosen Option : 1

Q.26

Which of the following compounds does NOT react with sodium metal ?

Ans



Question Type : MCQ

Question ID : 37135115891

Option 1 ID : 37135163561

Option 2 ID : 37135163564

Option 3 ID : 37135163562

Option 4 ID : 37135163563

Status : Answered

Chosen Option : 3

Q.27

Which among the following is a product of hydrolysis of one mole raffinose ?

Ans

✓ 1.

1 mole Glucose + 1 mole Fructose + 1 mole Galactose

✗ 2.

1 mole Fructose + 2 moles Glucose

✗ 3.

2 moles of Glucose

✗ 4.

2 moles Glucose + 1 mole Fructose + 1 mole Galactose

Question Type : MCQ

Question ID : 37135115887

Option 1 ID : 37135163546

Option 2 ID : 37135163547

Option 3 ID : 37135163545

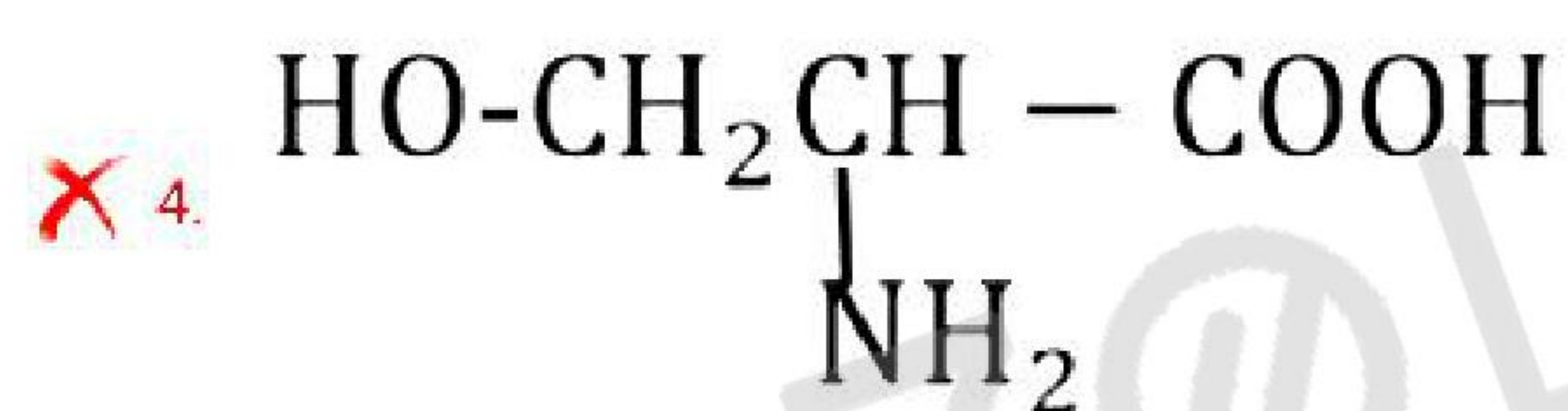
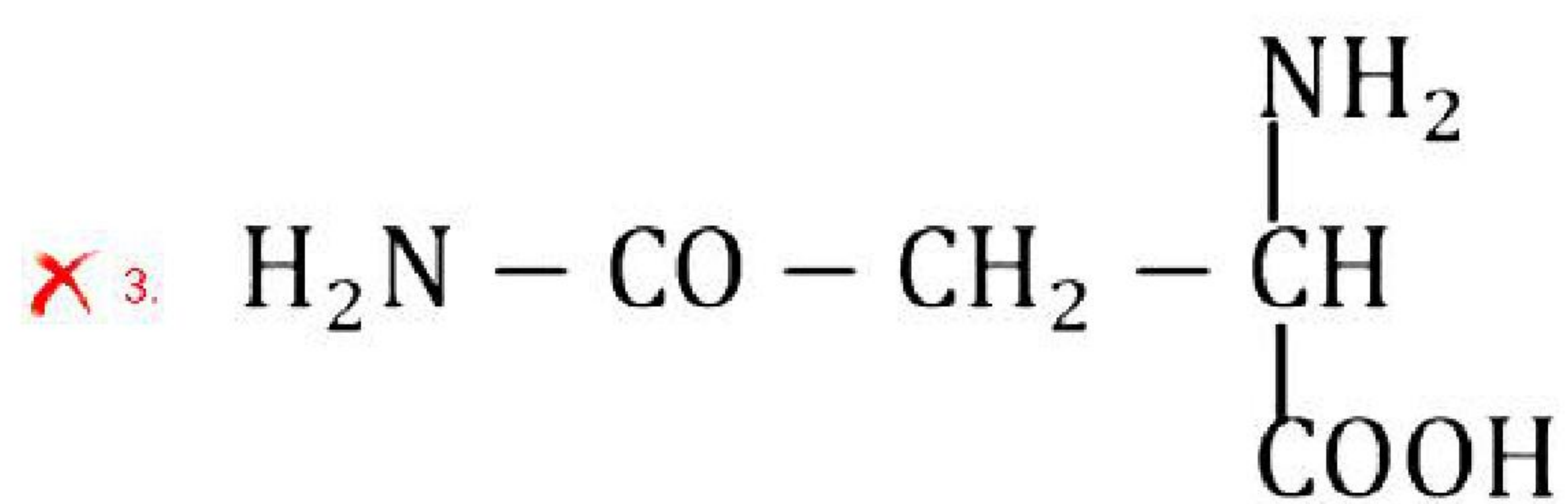
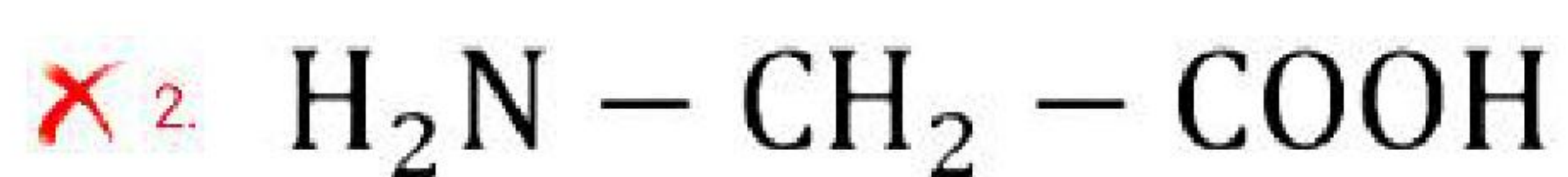
Option 4 ID : 37135163548

Status : Answered

Chosen Option : 1

Q.28 Which among the following formulae represents the ω - amino caproic acid ?

Ans



Question Type : MCQ

Question ID : 37135115859

Option 1 ID : 37135163434

Option 2 ID : 37135163433

Option 3 ID : 37135163436

Option 4 ID : 37135163435

Status : Answered

Chosen Option : 1

Q.29

Which among the following is NOT a polar molecular solid ?

Ans

✓^{1.} CH₄

✗^{2.} SO₂

✗^{3.} HCl

✗^{4.} H₂S

Question Type : MCQ

Question ID : 37135115888

Option 1 ID : 37135163551

Option 2 ID : 37135163550

Option 3 ID : 37135163549

Option 4 ID : 37135163552

Status : Answered

Chosen Option : 1

Q.30

A certain sample of gas has a volume of 0.2 L at one atmosphere pressure and 273.15 K. What is the volume of gas at 273.15 °C at same pressure ?

Ans

 1. 2.703 L

 2. 0.2 L

 3. 0.4 L

 4. 5.406 L

Question Type : MCQ

Question ID : 37135115878

Option 1 ID : 37135163511

Option 2 ID : 37135163509

Option 3 ID : 37135163510

Option 4 ID : 37135163512

Status : Answered

Chosen Option : 4

Q.31

3.42×10^{-2} kg Sugar (molar mass 342) is dissolved in water to produce 234.2 g of sugar syrup, what is the molality of sugar syrup ?

Ans

✓₁ 0.50 mol kg⁻¹

✗₂ 0.76 mol kg⁻¹

✗₃ 0.67 mol kg⁻¹

✗₄ 0.85 mol kg⁻¹

Question Type : MCQ

Question ID : 37135115860

Option 1 ID : 37135163437

Option 2 ID : 37135163439

Option 3 ID : 37135163438

Option 4 ID : 37135163440

Status : Answered

Chosen Option : 1

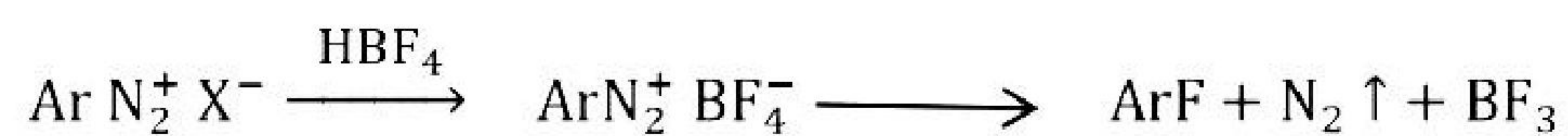
Q.32

Which of the following is a Gattermann reaction ?

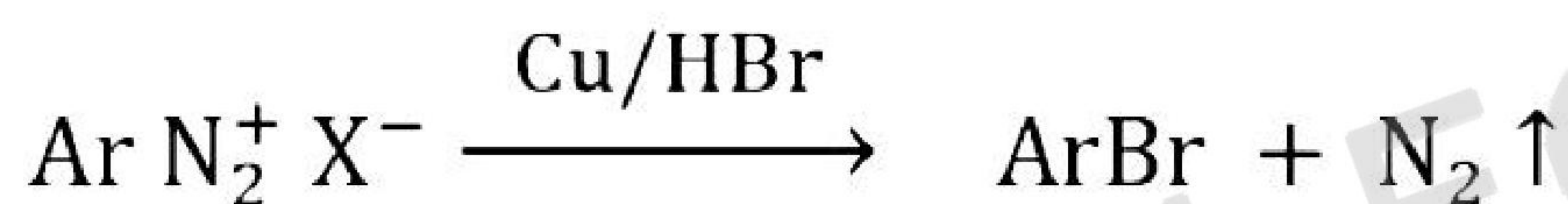
Ans  1.



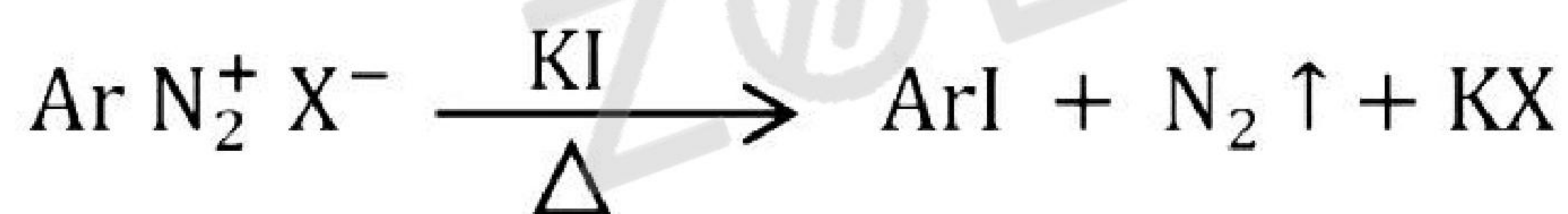
 2.



 3.



 4.



Question Type : MCQ

Question ID : 37135115893

Option 1 ID : 37135163569

Option 2 ID : 37135163572

Option 3 ID : 37135163570

Option 4 ID : 37135163571

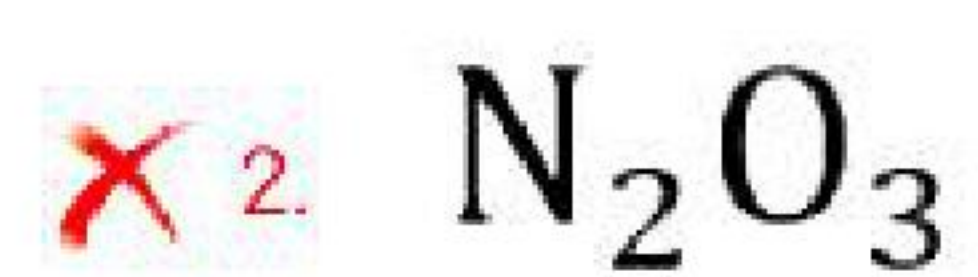
Status : Answered

Chosen Option : 3

Q.33

Which among the following oxides of nitrogen is brown coloured gas ?

Ans



Question Type : MCQ

Question ID : 37135115886

Option 1 ID : 37135163544

Option 2 ID : 37135163542

Option 3 ID : 37135163541

Option 4 ID : 37135163543

Status : Answered

Chosen Option : 2

Q.34

The units nanometer and picometer are related as,

Ans

✓₁ $1 \text{ nm} = 10^3 \text{ pm}$

✗₂ $1 \text{ nm} = 10^{-9} \text{ pm}$

✗₃ $1 \text{ nm} = 10^{-12} \text{ pm}$

✗₄ $1 \text{ nm} = 10^{-3} \text{ pm}$

Question Type : MCQ

Question ID : 37135115884

Option 1 ID : 37135163536

Option 2 ID : 37135163534

Option 3 ID : 37135163535

Option 4 ID : 37135163533

Status : Answered

Chosen Option : 4

Q.35

Which among the following gases is used in treatment of cancer ?

Ans

 1. He

 2. Ar

 3. Ne

 4. Rn

Question Type : MCQ

Question ID : 37135115852

Option 1 ID : 37135163405

Option 2 ID : 37135163407

Option 3 ID : 37135163406

Option 4 ID : 37135163408

Status : Answered

Chosen Option : 2

Q.36

In a first order reaction 87.5 % of reactant is converted in to product in 15 minutes.
The rate constant for the reaction is given by

Ans

✓₁ $\frac{0.693}{5} \text{ min}^{-1}$

✗₂ $\frac{0.693}{15} \text{ min}^{-1}$

✗₃ $\frac{5}{0.693} \text{ min}^{-1}$

✗₄ $0.693 \times 5 \text{ min}^{-1}$

Question Type : MCQ

Question ID : 37135115865

Option 1 ID : 37135163460

Option 2 ID : 37135163457

Option 3 ID : 37135163459

Option 4 ID : 37135163458

Status : Answered

Chosen Option : 1

Q.37

Which of the following factors affect molarity of solution ?

Ans

 1. Nature of solute dissolved

 2. Temperature

 3. Mass of solvent

 4. Molar mass of solvent

Question Type : MCQ

Question ID : 37135115899

Option 1 ID : 37135163594

Option 2 ID : 37135163593

Option 3 ID : 37135163596

Option 4 ID : 37135163595

Status : Answered

Chosen Option : 3

Q.38

Number of primary carbon atoms present in 3-Ethyl-2,4-dimethyl heptane is ?

Ans

✓ 1. 5

✗ 2. 3

✗ 3. 4

✗ 4. 7

Question Type : MCQ

Question ID : 37135115900

Option 1 ID : 37135163599

Option 2 ID : 37135163597

Option 3 ID : 37135163598

Option 4 ID : 37135163600

Status : Answered

Chosen Option : 1

Q.39

38.4 g of unknown substance (molar mass 384 g mol^{-1}) and 116 g of acetone is used to prepare a solution at 313 K. If vapour pressure of pure acetone (molar mass 58 g mol^{-1}) is 0.842 atmosphere, what is the vapour pressure of solution ?

Ans

 1. 0.650 atm.

 2. 0.880 atm.

 3. 0.7999 atm.

 4. 0.958 atm.

Question Type : MCQ

Question ID : 37135115894

Option 1 ID : 37135163576

Option 2 ID : 37135163574

Option 3 ID : 37135163575

Option 4 ID : 37135163573

Status : Answered

Chosen Option : 1

Q.40

The highest peak in energy profile diagram for mechanism of alkaline hydrolysis of tertiary butyl bromide represents

Ans

✓ 1. transition state of 1st step

✗ 2. formation of carbocation

✗ 3. transition state of 2nd step

✗ 4. products

Question Type : MCQ

Question ID : 37135115851

Option 1 ID : 37135163402

Option 2 ID : 37135163401

Option 3 ID : 37135163403

Option 4 ID : 37135163404

Status : Answered

Chosen Option : 1

Q.41

How many number of unit cells are present in 100 g of an element with fcc crystal having density 10 g/cm^3 and edge length 100 pm ?

Ans

 1. 3×10^{25}

 2. 2×10^{25}

 3. 4×10^{25}

 4. 1×10^{25}

Question Type : MCQ

Question ID : 37135115864

Option 1 ID : 37135163455

Option 2 ID : 37135163454

Option 3 ID : 37135163456

Option 4 ID : 37135163453

Status : Answered

Chosen Option : 3

Q.42

Which of the following is used as disinfectant ?

Ans

 1. Bithional

 2. Novestrol

 3. Sulphur dioxide

 4. Cloroxystenol

Question Type : MCQ

Question ID : 37135115854

Option 1 ID : 37135163415

Option 2 ID : 37135163416

Option 3 ID : 37135163413

Option 4 ID : 37135163414

Status : Answered

Chosen Option : 1

Q.43

Freundlich's equation for adsorption of gas on solid is represented as

Ans

 1. $\frac{m}{x} = k P^n$

 2. $\frac{x}{m} = k P^n$

 3. $\frac{m}{x} = k P_n^{\frac{1}{n}}$

 4. $\frac{x}{m} = k P_n^{\frac{1}{n}}$

Question Type : MCQ

Question ID : 37135115868

Option 1 ID : 37135163472

Option 2 ID : 37135163471

Option 3 ID : 37135163470

Option 4 ID : 37135163469

Status : Answered

Chosen Option : 2

Q.44

What is the packing efficiency of fcc crystal structure ?

Ans

✓^{1.} 74.0 %

✗^{2.} 68.04 %

✗^{3.} 52.4 %

✗^{4.} 47.6 %

Question Type : MCQ

Question ID : 37135115877

Option 1 ID : 37135163507

Option 2 ID : 37135163508

Option 3 ID : 37135163505

Option 4 ID : 37135163506

Status : Answered

Chosen Option : 1

Q.45

What is the standard potential of cell

$\text{Ni} \mid \text{Ni}^{2+}_{(1\text{M})} \parallel \text{Cu}^{2+}_{(1\text{M})} \mid \text{Cu}$ If $E^\circ\text{Cu} = 0.337 \text{ V}$ and $E^\circ\text{Ni} = -0.236 \text{ V}$

Ans

 1. 0.101 V

 2. -0.136 V

 3. 0.573 V

 4. -0.753 V

Question Type : MCQ

Question ID : 37135115881

Option 1 ID : 37135163521

Option 2 ID : 37135163523

Option 3 ID : 37135163522

Option 4 ID : 37135163524

Status : Answered

Chosen Option : 3

Q.46

Which one of the following compounds is optically active ?

Ans

 1. 2-Chloropentane

 2. 3-Chloropentane

 3. 2-Chloropropane

 4. 2-Chloro-2 methyl butane

Question Type : MCQ

Question ID : 37135115869

Option 1 ID : 37135163475

Option 2 ID : 37135163476

Option 3 ID : 37135163473

Option 4 ID : 37135163474

Status : Answered

Chosen Option : 1

Q.47

The number of possible monohalogen derivatives for the alkyl halide having molecular formula C_4H_9X is

Ans

 1. 3

 2. 2

 3. 4

 4. 1

Question Type : MCQ

Question ID : 37135115897

Option 1 ID : 37135163586

Option 2 ID : 37135163587

Option 3 ID : 37135163585

Option 4 ID : 37135163588

Status : Answered

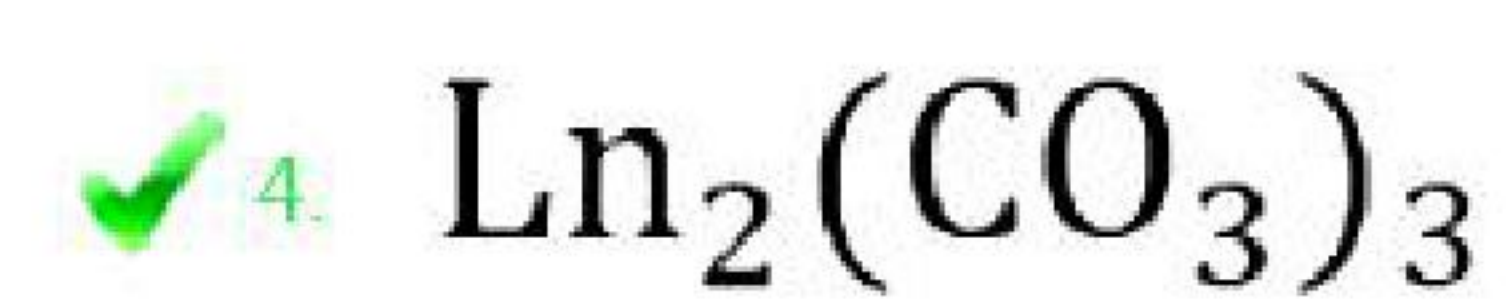
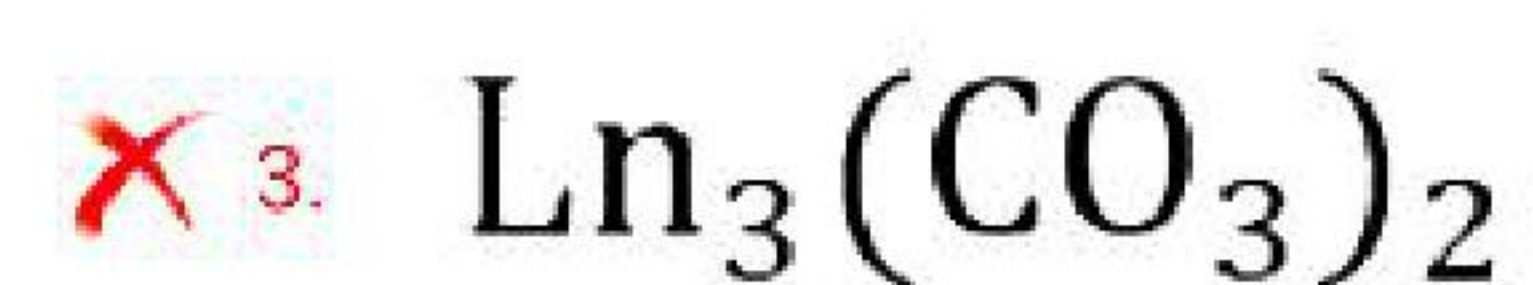
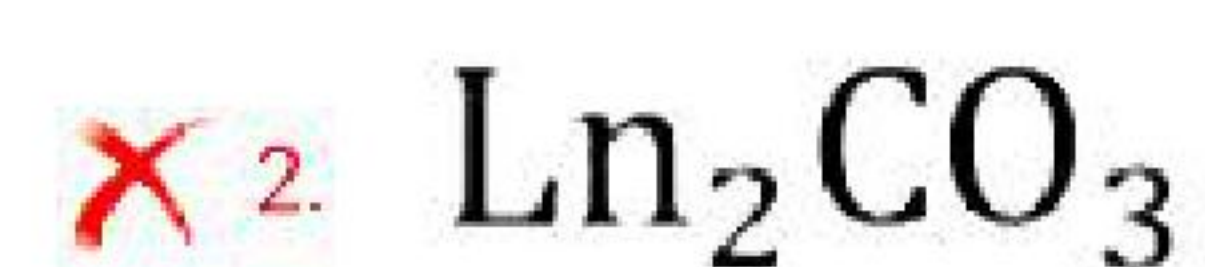
Chosen Option : 1

Q.48

Identify the formula of compound (B) formed in following reaction.

- (i) Lanthanoids (Ln) burnt in oxygen forming compound (A)
- (ii) Compound (A) reacts with CO_2 in excess to form compound (B)

Ans



Question Type : MCQ

Question ID : 37135115874

Option 1 ID : 37135163493

Option 2 ID : 37135163495

Option 3 ID : 37135163494

Option 4 ID : 37135163496

Status : Answered

Chosen Option : 4

Q.49

Which among the following pair of elements show highest oxidation state +7 in their different compounds ?

(Atomic no. Cr = 24, V = 23, Mn = 25, Cl = 17, S = 16)

Ans

✓¹ Mn , Cl

✗² Cr , Mn

✗³ V , Mn

✗⁴ S , Cl

Question Type : MCQ

Question ID : 37135115871

Option 1 ID : 37135163483

Option 2 ID : 37135163481

Option 3 ID : 37135163482

Option 4 ID : 37135163484

Status : Answered

Chosen Option : 1

Q.50

Which of the following is NOT an intensive property ?

Ans

 1. Surface tension

 2. Density

 3. Refractive index

 4. Heat capacity

Question Type : MCQ

Question ID : 37135115853

Option 1 ID : 37135163412

Option 2 ID : 37135163410

Option 3 ID : 37135163409

Option 4 ID : 37135163411

Status : Answered

Chosen Option : 4

Section: Mathematics

Q.1

$$\int_{-a}^a x^2 \left(\frac{e^{x^3} - e^{-x^3}}{e^{x^3} + e^{-x^3}} \right) dx =$$

Ans

 1. a^2

 2. 0

 3. a

 4. $2 \int_0^a x^2 \left(\frac{e^{x^3} - e^{-x^3}}{e^{x^3} + e^{-x^3}} \right) dx$

Question Type : MCQ

Question ID : 37135115919

Option 1 ID : 37135163674

Option 2 ID : 37135163673

Option 3 ID : 37135163675

Option 4 ID : 37135163676

Status : Answered

Chosen Option : 2

Q.2

The shortest distance between the lines $\vec{r} = (1 - t)\hat{i} + (t - 2)\hat{j} + (3 - 2t)\hat{k}$ and

$\vec{r} = (p + 1)\hat{i} + (2p - 1)\hat{j} + (2p + 1)\hat{k}$ is

Ans

 1. $\frac{8}{\sqrt{29}}$ units

 2. $\frac{4}{\sqrt{29}}$ units

 3. $\frac{2}{\sqrt{5}}$ units

 4. $\frac{4}{\sqrt{19}}$ units

Question Type : MCQ

Question ID : 37135115939

Option 1 ID : 37135163754

Option 2 ID : 37135163755

Option 3 ID : 37135163756

Option 4 ID : 37135163753

Status : Answered

Chosen Option : 2

Q.3

The probability that the person who undergoes certain operation will survive is 0.2.

If 5 patients undergo similar operations, then the probability that exactly four will survive is

Ans

 1. 0.0042

 2. 0.0084

 3. 0.0032

 4. 0.0064

Question Type : MCQ

Question ID : 37135115907

Option 1 ID : 37135163626

Option 2 ID : 37135163627

Option 3 ID : 37135163625

Option 4 ID : 37135163628

Status : Answered

Chosen Option : 4

Q.4

If $f : \mathbb{R} \rightarrow \mathbb{R}$, $g : \mathbb{R} \rightarrow \mathbb{R}$ are two functions defined by $f(x) = 2x - 3$, $g(x) = x^3 + 5$

then $(f \circ g)^{-1}(x) =$

Ans

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

 2. $\left(\frac{x - 7}{2}\right)^{\frac{1}{3}}$

 3. $\left(\frac{x - 7}{2}\right)^{\frac{1}{2}}$

 4. $\left(\frac{x + 7}{2}\right)^{\frac{1}{3}}$

Question Type : MCQ

Question ID : 37135115920

Option 1 ID : 37135163679

Option 2 ID : 37135163678

Option 3 ID : 37135163677

Option 4 ID : 37135163680

Status : Answered

Chosen Option : 4

Q.5 The equation of the line passing through the point $(2, 3, -4)$ and perpendicular to XOZ plane is

Ans

✗₁ $x = -2; y = 3 + \lambda; z = 4$

✗₂ $\frac{x-2}{1} = \frac{z+4}{1}; y = 3$

✗₃ $x = -2; y = -3 + \lambda; z = 4$

✓₄ $x = 2; y = 3 + \lambda; z = -4$

Question Type : MCQ

Question ID : 37135115937

Option 1 ID : 37135163748

Option 2 ID : 37135163745

Option 3 ID : 37135163747

Option 4 ID : 37135163746

Status : Answered

Chosen Option : 2

Q.6

If the vectors $\vec{a} = \hat{i} - 2\hat{j} + \hat{k}$, $\vec{b} = 2\hat{i} - 5\hat{j} + p\hat{k}$ and $\vec{c} = 5\hat{i} - 9\hat{j} + 4\hat{k}$ are coplanar, then the value of p is

Ans

 1. -3

 2. 3

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

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

Question Type : MCQ

Question ID : 37135115929

Option 1 ID : 37135163714

Option 2 ID : 37135163713

Option 3 ID : 37135163715

Option 4 ID : 37135163716

Status : Answered

Chosen Option : 2

Q.7

In $\triangle ABC$ with usual notations $a = 4$, $b = 3$, $\angle A = 60^\circ$, then c is a root of the equation

Ans

✓₁ $c^2 - 3c - 7 = 0$

✗₂ $c^2 - 3c + 7 = 0$

✗₃ $c^2 + 3c - 7 = 0$

✗₄ $c^2 + 3c + 7 = 0$

Question Type : MCQ

Question ID : 37135115912

Option 1 ID : 37135163645

Option 2 ID : 37135163646

Option 3 ID : 37135163648

Option 4 ID : 37135163647

Status : Answered

Chosen Option : 1

Q.8

For a sequence if $S_n = \frac{5^n - 2^n}{2^n}$, then its fourth term is

Ans

✓ 1. $\frac{375}{16}$

✗ 2. $\frac{375}{8}$

✗ 3. $\frac{251}{8}$

✗ 4. $\frac{251}{16}$

Question Type : MCQ

Question ID : 37135115909

Option 1 ID : 37135163635

Option 2 ID : 37135163636

Option 3 ID : 37135163633

Option 4 ID : 37135163634

Status : Answered

Chosen Option : 1

Q.9

If the function f defined by $f(x) = K(x - x^2)$ if $0 < x < 1$
 $= 0$, other wise

is the p.d.f. of a r. v. X , then the value of $P(X < \frac{1}{2})$ is

Ans

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

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

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

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

Question Type : MCQ

Question ID : 37135115903

Option 1 ID : 37135163612

Option 2 ID : 37135163609

Option 3 ID : 37135163611

Option 4 ID : 37135163610

Status : Answered

Chosen Option : 2

Q.10

If $\tan^{-1}\left(\frac{1-x}{1+x}\right) - \frac{1}{2}\tan^{-1}x = 0$, for $x > 0$, then $x =$

Ans

 1. $\sqrt{3}$

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

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

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

Question Type : MCQ

Question ID : 37135115943

Option 1 ID : 37135163770

Option 2 ID : 37135163771

Option 3 ID : 37135163769

Option 4 ID : 37135163772

Status : Answered

Chosen Option : 2

Q.11

$$\cos x \cdot \cos 7x - \cos 5x \cdot \cos 13x =$$

Ans

 1. $2\cos^2 6x \cdot \cos 12x$

 2. $2\sin^2 6x \cdot \cos 6x$

 3. $2\sin 6x \cdot \sin 12x$

 4. $2\sin 6x \cdot \cos 12x$

Question Type : MCQ

Question ID : 37135115948

Option 1 ID : 37135163791

Option 2 ID : 37135163792

Option 3 ID : 37135163790

Option 4 ID : 37135163789

Status : Answered

Chosen Option : 3

Q.12

If $f : \mathbb{R} \rightarrow \mathbb{R}$, such that $f(x) = \frac{e^x + e^{-x}}{e^x - e^{-x}}$, then f is

Ans

 1. a periodic function

 2. an even function

 3. an odd function

 4.

a neither even nor odd function

Question Type : MCQ

Question ID : 37135115925

Option 1 ID : 37135163700

Option 2 ID : 37135163697

Option 3 ID : 37135163698

Option 4 ID : 37135163699

Status : Answered

Chosen Option : 3

Q.13

$$\int_0^{\frac{\pi}{2}} \frac{\sin^{\frac{2}{3}} x}{\sin^{\frac{2}{3}} x + \cos^{\frac{2}{3}} x} dx =$$

Ans

✓ 1. $\frac{\pi}{4}$

✗ 2. $\frac{\pi}{8}$

✗ 3. $\frac{\pi}{2}$

✗ 4. π

Question Type : MCQ

Question ID : 37135115917

Option 1 ID : 37135163665

Option 2 ID : 37135163666

Option 3 ID : 37135163667

Option 4 ID : 37135163668

Status : Answered

Chosen Option : 1

Q.14

Given below is the probability distribution of discrete r.v. X

$X = x$	1	2	3	4	5	6
$P[X = x]$	k	0	2k	5k	k	3k

Then $P[X \geq 4] =$

Ans

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

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

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

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

Question Type : MCQ
Question ID : 37135115905
Option 1 ID : 37135163617
Option 2 ID : 37135163619
Option 3 ID : 37135163618
Option 4 ID : 37135163620
Status : Answered
Chosen Option : 4

Q.15

If $\tan \theta = \frac{1}{3}$, then $\cos 2\theta =$

Ans

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

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

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

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

Question Type : MCQ

Question ID : 37135115940

Option 1 ID : 37135163760

Option 2 ID : 37135163758

Option 3 ID : 37135163759

Option 4 ID : 37135163757

Status : Answered

Chosen Option : 4

Q.16

The dual of the statement pattern $\sim p \wedge (q \vee t)$ is
(where t is a tautology and c is a contradiction)

Ans

 1. $p \vee (q \wedge c)$

 2. $\sim p \vee (q \wedge t)$

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

 4. $p \vee (q \wedge t)$

Question Type : MCQ

Question ID : 37135115946

Option 1 ID : 37135163782

Option 2 ID : 37135163783

Option 3 ID : 37135163781

Option 4 ID : 37135163784

Status : Answered

Chosen Option : 3

Q.17

$$\int \frac{\sec x}{\sqrt{\log(\sec x + \tan x)}} dx =$$

Ans

✗¹ $\sqrt{\log(\sec x + \tan x)} + c$

✗² $\sqrt{\sec x + \tan x} + c$

✗³ $2\sqrt{\sec x + \tan x} + c$

✓⁴ $2\sqrt{\log(\sec x + \tan x)} + c$

Question Type : MCQ

Question ID : 37135115926

Option 1 ID : 37135163702

Option 2 ID : 37135163704

Option 3 ID : 37135163703

Option 4 ID : 37135163701

Status : Answered

Chosen Option : 4

Q.18 The L.P.P. to maximize $z = x + y$, subject to $x + y \leq 30$, $x \leq 15$, $y \leq 20$, $x + y \geq 15$,
 $x, y \geq 0$ has

Ans

-  1. no solution.
-  2. a unique solution.
-  3. infinite solutions.
-  4. unbounded solutions.

Question Type : MCQ

Question ID : 37135115918

Option 1 ID : 37135163670

Option 2 ID : 37135163669

Option 3 ID : 37135163672

Option 4 ID : 37135163671

Status : Answered

Chosen Option : 3

Q.19 With usual notations, in ΔABC , if $b \cos^2 \frac{C}{2} + c \cos^2 \frac{B}{2} = \frac{3a}{2}$, then

Ans

✓^{1.} b, a, c are in A.P.

✗^{2.} b, a, c are in G.P.

✗^{3.} a, b, c are in G.P.

✗^{4.} a, b, c are in A.P.

Question Type : MCQ

Question ID : 37135115904

Option 1 ID : 37135163615

Option 2 ID : 37135163616

Option 3 ID : 37135163614

Option 4 ID : 37135163613

Status : Answered

Chosen Option : 1

Q.20

If $y = e^{4x} \cos 5x$, then $\frac{d^2y}{dx^2}$ at $x = 0$ is

Ans

✓₁ -9

✗₂ 9

✗₃ 8

✗₄ -8

Question Type : MCQ

Question ID : 37135115944

Option 1 ID : 37135163774

Option 2 ID : 37135163773

Option 3 ID : 37135163775

Option 4 ID : 37135163776

Status : Answered

Chosen Option : 1

Q.21

The joint equation of pair of lines passing through point of intersection of lines

$2x^2 - xy - 15y^2 - 7x + 32y - 9 = 0$ and parallel to co-ordinate axes is

Ans

✓₁ $xy - x - 2y + 2 = 0$

✗₂ $xy + x + 2y - 2 = 0$

✗₃ $xy + x + 2y + 2 = 0$

✗₄ $xy - x - 2y - 2 = 0$

Question Type : MCQ

Question ID : 37135115906

Option 1 ID : 37135163621

Option 2 ID : 37135163623

Option 3 ID : 37135163622

Option 4 ID : 37135163624

Status : Answered

Chosen Option : 2

Q.22 A tangent to the curve $x = at^2$, $y = 2at$ is perpendicular to X axis, then the point of contact is

Ans

 1. $(0, -a)$

 2. $(0, 0)$

 3. $(0, 2a)$

 4. $(0, a)$

Question Type : MCQ

Question ID : 37135115938

Option 1 ID : 37135163751

Option 2 ID : 37135163749

Option 3 ID : 37135163752

Option 4 ID : 37135163750

Status : Answered

Chosen Option : 1

Q.23

If $P(A') = 0.6$, $P(B) = 0.8$ and $P(B/A) = 0.3$, then $P(A/B) =$

Ans

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

 2. $\frac{3}{20}$

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

 4. $\frac{9}{20}$

Question Type : MCQ

Question ID : 37135115914

Option 1 ID : 37135163654

Option 2 ID : 37135163655

Option 3 ID : 37135163653

Option 4 ID : 37135163656

Status : Answered

Chosen Option : 2

Q.24

The co-ordinates of foci of the ellipse $16x^2 + 9y^2 = 144$ are

Ans

 1. $(\pm 7, 0)$

 2. $(0, \pm \sqrt{7})$

 3. $(\pm \sqrt{7}, 0)$

 4. $(0, \pm 7)$

Question Type : MCQ

Question ID : 37135115934

Option 1 ID : 37135163734

Option 2 ID : 37135163735

Option 3 ID : 37135163733

Option 4 ID : 37135163736

Status : Answered

Chosen Option : 2

Q.25

The radius of a circle is increasing at the rate 2 cm/sec. The rate at which its area is increasing when the radius of the circle is 5 decimeters is

Ans

 1. $100 \pi \text{ cm}^2/\text{sec}$

 2. $200 \pi \text{ cm}^2/\text{sec}$

 3. $2000 \pi \text{ cm}^2/\text{sec}$

 4. $20 \pi \text{ cm}^2/\text{sec}$

Question Type : MCQ

Question ID : 37135115927

Option 1 ID : 37135163707

Option 2 ID : 37135163705

Option 3 ID : 37135163708

Option 4 ID : 37135163706

Status : Answered

Chosen Option : 3

Q.26

$$\int_0^1 \tan^{-1} \left[\frac{2x-1}{1+x-x^2} \right] dx =$$

Ans

✓ 1. 0

✗ 2. $\frac{\pi}{6}$

✗ 3. 1

✗ 4. $\frac{\pi}{4}$

Question Type : MCQ

Question ID : 37135115915

Option 1 ID : 37135163657

Option 2 ID : 37135163660

Option 3 ID : 37135163658

Option 4 ID : 37135163659

Status : Answered

Chosen Option : 4

Q.27 In a certain culture of bacteria, the rate of increase is proportional to the number present. It is found that the number doubles in 4 hours. Then the number of times the bacteria are increased in 12 hours is

Ans

 1. 6

 2. 8

 3. 12

 4. 4

Question Type : MCQ

Question ID : 37135115942

Option 1 ID : 37135163766

Option 2 ID : 37135163767

Option 3 ID : 37135163768

Option 4 ID : 37135163765

Status : Answered

Chosen Option : 2

Q.28

If one of the lines given by the equation $x^2 + kxy + 2y^2 = 0$ is $x + 2y = 0$, then $k =$

Ans

 1. 2

 2. 1

 3. 3

 4. 4

Question Type : MCQ

Question ID : 37135115931

Option 1 ID : 37135163722

Option 2 ID : 37135163721

Option 3 ID : 37135163723

Option 4 ID : 37135163724

Status : Answered

Chosen Option : 3

Q.29

The area bounded by the parabola $x^2 = 4y$ and the lines $y = 2$, $y = 4$ and Y -axis

is

Ans

 1. $\frac{4}{3} (8 - 2\sqrt{2})$ sq. units

 2. $\frac{8}{3} (8 - 2\sqrt{2})$ sq. units

 3. $\frac{8}{3} (8 + 2\sqrt{2})$ sq. units

 4. $(8 - 2\sqrt{2})$ sq. units

Question Type : MCQ

Question ID : 37135115913

Option 1 ID : 37135163652

Option 2 ID : 37135163649

Option 3 ID : 37135163651

Option 4 ID : 37135163650

Status : Answered

Chosen Option : 1

Q.30

$$\int \frac{\sin 2x}{\sin^2 x \cos^2 x} dx =$$

Ans

✓₁ $\log|\tan^2 x| + c$

✗₂ $\log|\sec^2 x| + c$

✗₃ $\log|\tan x| + c$

✗₄ $\log|\sec x| + c$

Question Type : MCQ

Question ID : 37135115923

Option 1 ID : 37135163690

Option 2 ID : 37135163692

Option 3 ID : 37135163689

Option 4 ID : 37135163691

Status : Answered

Chosen Option : 1

Q.31

If a, b, c are lengths of the sides BC, CA, AB respectively of ΔABC and H is any point in the plane of ΔABC such that $a\overrightarrow{AH} + b\overrightarrow{BH} + c\overrightarrow{CH} = \vec{0}$, then H is the

Ans

 1. Circumcentre of ΔABC

 2. Incentre of ΔABC

 3. Centroid of ΔABC

 4. Orthocentre of ΔABC

Question Type : MCQ

Question ID : 37135115924

Option 1 ID : 37135163694

Option 2 ID : 37135163696

Option 3 ID : 37135163693

Option 4 ID : 37135163695

Status : Answered

Chosen Option : 2

Q.32

Which of the following statement pattern is a tautology ?

$$S_1 \equiv (\sim q \wedge p) \wedge q$$

$$S_2 \equiv [p \wedge (p \rightarrow q)] \rightarrow q$$

$$S_3 \equiv (p \wedge q) \wedge (\sim p \vee \sim q)$$

$$S_4 \equiv (p \wedge q) \rightarrow r$$

Ans

 1. S_4

 2. S_3

 3. S_1

 4. S_2

Question Type : MCQ

Question ID : 37135115935

Option 1 ID : 37135163740

Option 2 ID : 37135163739

Option 3 ID : 37135163737

Option 4 ID : 37135163738

Status : Answered

Chosen Option : 1

Q.33

If $\overrightarrow{AB} = 3\hat{i} + 5\hat{j} + 4\hat{k}$, $\overrightarrow{AC} = 5\hat{i} - 5\hat{j} + 2\hat{k}$ represent the sides of triangle ABC, then the length of median through A is

Ans

 1. $\sqrt{6}$ units

 2. 5 units

 3. $\sqrt{5}$ units

 4. 6 units

Question Type : MCQ

Question ID : 37135115910

Option 1 ID : 37135163640

Option 2 ID : 37135163638

Option 3 ID : 37135163637

Option 4 ID : 37135163639

Status : Answered

Chosen Option : 1

Q.34 A plane E_1 makes intercepts $1, -3, 4$ on the co-ordinate axes. The equation of a plane parallel to plane E_1 and passing through $(2, 6, -8)$ is

Ans

 1. $\frac{x}{2} - \frac{y}{3} + \frac{z}{4} + 3 = 0$

 2. $\frac{x}{1} - \frac{y}{3} + \frac{z}{4} + 12 = 0$

 3. $\frac{x}{1} - \frac{y}{3} + \frac{z}{4} + 2 = 0$

 4. $\frac{x}{3} - \frac{y}{6} + \frac{z}{2} + \frac{13}{3} = 0$

Question Type : MCQ

Question ID : 37135115941

Option 1 ID : 37135163763

Option 2 ID : 37135163764

Option 3 ID : 37135163762

Option 4 ID : 37135163761

Status : Answered

Chosen Option : 2

Q.35

If a line in octant OXYZ makes equal angles with co-ordinate axes , then

Ans

 1. $l = m = n = \frac{1}{3}$

 2. $l = m = n = -\frac{1}{3}$

 3. $l = m = n = \frac{1}{\sqrt{3}}$

 4. $l = m = n = -\frac{1}{\sqrt{3}}$

Question Type : MCQ

Question ID : 37135115902

Option 1 ID : 37135163606

Option 2 ID : 37135163608

Option 3 ID : 37135163605

Option 4 ID : 37135163607

Status : Answered

Chosen Option : 3

Q.36

The length of latus rectum of the parabola whose focus is at $(1, -2)$ and directrix is the line $x + y + 3 = 0$ is

Ans

 1. $8\sqrt{2}$ units

 2. $2\sqrt{2}$ units

 3. $\sqrt{2}$ units

 4. $4\sqrt{2}$ units

Question Type : MCQ

Question ID : 37135115932

Option 1 ID : 37135163728

Option 2 ID : 37135163726

Option 3 ID : 37135163725

Option 4 ID : 37135163727

Status : Answered

Chosen Option : 1

Q.37

If $A = \begin{bmatrix} 2 & 3 \\ 1 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & -3 \\ -1 & 2 \end{bmatrix}$, then $(B^{-1}A^{-1})^{-1} =$

Ans

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

 2. $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$

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

 4. $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

Question Type : MCQ

Question ID : 37135115901

Option 1 ID : 37135163604

Option 2 ID : 37135163603

Option 3 ID : 37135163601

Option 4 ID : 37135163602

Status : Answered

Chosen Option : 4

Q.38

If $\log_{10} \left(\frac{x^3 - y^3}{x^3 + y^3} \right) = 2$ then $\frac{dx}{dy} =$

Ans

 1. $\left(-\frac{99}{101} \right) \frac{x^2}{y^2}$

 2. $\left(-\frac{101}{99} \right) \frac{x^2}{y^2}$

 3. $\left(-\frac{101}{99} \right) \frac{y^2}{x^2}$

 4. $\left(-\frac{99}{101} \right) \frac{y^2}{x^2}$

Question Type : MCQ

Question ID : 37135115930

Option 1 ID : 37135163720

Option 2 ID : 37135163719

Option 3 ID : 37135163717

Option 4 ID : 37135163718

Status : Answered

Chosen Option : 1

Q.39

The integrating factor of the differential equation $\frac{dy}{dx} + \frac{1}{x}y = x^3 - 3$ is

Ans

☒ 1. $-y$

☒ 2. y

☒ 3. x

☒ 4. $-x$

Question Type : MCQ

Question ID : 37135115908

Option 1 ID : 37135163631

Option 2 ID : 37135163630

Option 3 ID : 37135163632

Option 4 ID : 37135163629

Status : Answered

Chosen Option : 3

Q.40

The distance of the point (3, 4, 5) from the point of intersection of the line

$\frac{x-3}{1} = \frac{y-4}{2} = \frac{z-5}{2}$ and plane $x + y + z = 2$ is

Ans

☒ 1. 6 units

☒ 2. 13 units

☒ 3. 10 units

☒ 4. 7 units

Question Type : MCQ

Question ID : 37135115916

Option 1 ID : 37135163662

Option 2 ID : 37135163664

Option 3 ID : 37135163661

Option 4 ID : 37135163663

Status : Answered

Chosen Option : 1

Q.41

$$\int \frac{x^2 + 1}{x^4 + x^2 + 1} dx =$$

Ans

✓₁ $\frac{1}{\sqrt{3}} \tan^{-1} \left(\frac{x - \frac{1}{x}}{\sqrt{3}} \right) + c$

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

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

✗₄ $\frac{1}{3} \tan^{-1} \left(\frac{x + \frac{1}{x}}{3} \right) + c$

Question Type : MCQ

Question ID : 37135115921

Option 1 ID : 37135163682

Option 2 ID : 37135163681

Option 3 ID : 37135163684

Option 4 ID : 37135163683

Status : Answered

Chosen Option : 3

Q.42

If $x^2 + y^2 = 1$, then $\frac{d^2x}{dy^2} =$

Ans

 1. x^3

 2. y^3

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

 4. $-y^3$

Question Type : MCQ

Question ID : 37135115936

Option 1 ID : 37135163743

Option 2 ID : 37135163742

Option 3 ID : 37135163744

Option 4 ID : 37135163741

Status : Answered

Chosen Option : 3

Q.43

The general solution of the differential equation $\sec^2 x \tan y \, dx + \sec^2 y \tan x \, dy = 0$

is

Ans

✓_{1.} $\tan x \tan y = c$

✗_{2.} $\sec x \tan y = c$

✗_{3.} $\sec x \sec y = c$

✗_{4.} $\tan x \sec y = c$

Question Type : MCQ

Question ID : 37135115911

Option 1 ID : 37135163641

Option 2 ID : 37135163642

Option 3 ID : 37135163644

Option 4 ID : 37135163643

Status : Answered

Chosen Option : 1

Q.44

If $\sec\theta = \frac{13}{12}$, θ lies in 4th quadrant, then $\tan\theta \times \operatorname{cosec}\theta \times \sin\theta \times \cos\theta =$

Ans

✓ 1. $-\frac{5}{13}$

✗ 2. $\frac{144}{169}$

✗ 3. $\frac{25}{169}$

✗ 4. $\frac{5}{13}$

Question Type : MCQ

Question ID : 37135115945

Option 1 ID : 37135163777

Option 2 ID : 37135163780

Option 3 ID : 37135163779

Option 4 ID : 37135163778

Status : Answered

Chosen Option : 1

Q.45

The acute angle included between the lines $x\sin\theta - y\cos\theta = 5$ and

$x\sin\alpha - y\cos\alpha + 11 = 0$ is

Ans

✓ 1. $|\theta - \alpha|$

✗ 2. $\frac{\pi}{4}$

✗ 3. $\frac{\pi}{3}$

✗ 4. $\theta + \alpha$

Question Type : MCQ

Question ID : 37135115928

Option 1 ID : 37135163711

Option 2 ID : 37135163709

Option 3 ID : 37135163712

Option 4 ID : 37135163710

Status : Answered

Chosen Option : 1

Q.46 Water at 100°C cools in 15 minutes to 75°C in a room temperature of 25°C . Then the temperature of water after 30 minutes is

Ans

 1. $\left(\frac{400}{9}\right)^{\circ}\text{C}$

 2. $\left(\frac{526}{9}\right)^{\circ}\text{C}$

 3. $\left(\frac{335}{9}\right)^{\circ}\text{C}$

 4. $\left(\frac{175}{3}\right)^{\circ}\text{C}$

Question Type : **MCQ**

Question ID : **37135115950**

Option 1 ID : **37135163798**

Option 2 ID : **37135163799**

Option 3 ID : **37135163797**

Option 4 ID : **37135163800**

Status : **Answered**

Chosen Option : **4**

Q.47

If $A = \begin{bmatrix} 1 & 2 & i \\ 1 & 1 & 1 \\ 1 & 1 & 0 \end{bmatrix}$, then $[\text{adj}(\text{adj } A)]^{-1} =$

Ans

 1. A^2

 2. $2A$

 3. A^{-1}

 4. I

Question Type : MCQ

Question ID : 37135115922

Option 1 ID : 37135163685

Option 2 ID : 37135163688

Option 3 ID : 37135163686

Option 4 ID : 37135163687

Status : Answered

Chosen Option : 4

Q.48

The equation of a normal to the curve $x = 4\sec\theta$ and $y = 4\tan^2\theta$ at $\theta = \frac{\pi}{4}$ is

Ans

 1. $x + y\sqrt{2} = 7\sqrt{2}$

 2. $2\sqrt{2}x + y = 8\sqrt{2}$

 3. $\sqrt{2}x + y = 7\sqrt{2}$

 4. $x + 2\sqrt{2}y = 12\sqrt{2}$

Question Type : MCQ

Question ID : 37135115933

Option 1 ID : 37135163729

Option 2 ID : 37135163730

Option 3 ID : 37135163732

Option 4 ID : 37135163731

Status : Answered

Chosen Option : 4

Q.49

The equation of the curve which passes through point (1, 0) and has tangent with

slope $1 + \frac{y}{x} + \left(\frac{y}{x}\right)^2$ is

Ans

✗ 1. $\tan^{-1} \left(\frac{x}{y} \right) = \log |x|$

✗ 2. $\tan^{-1} \left(\frac{x}{y} \right) = \log |y|$

✗ 3. $\tan^{-1} \left(\frac{y}{x} \right) = \log |y|$

✓ 4. $\tan^{-1} \left(\frac{y}{x} \right) = \log |x|$

Question Type : MCQ

Question ID : 37135115949

Option 1 ID : 37135163795

Option 2 ID : 37135163796

Option 3 ID : 37135163793

Option 4 ID : 37135163794

Status : Answered

Chosen Option : 2

Q.50

If the function $f(x) = \frac{1 - \sin 2x + \cos 2x}{1 + \sin 2x + \cos 2x}$ if $x \neq \frac{\pi}{2}$
 $= k$ if $x = \frac{\pi}{2}$

is continuous at $x = \frac{\pi}{2}$, then $k =$

Ans

 1. 2

 2. 1

 3. 0

 4. -1

Question Type : MCQ

Question ID : 37135115947

Option 1 ID : 37135163785

Option 2 ID : 37135163788

Option 3 ID : 37135163786

Option 4 ID : 37135163787

Status : Answered

Chosen Option : 4