

PHYSICS, CHEMISTRY & MATHEMATICS

Pattern - CPT-2

QP CODE:

PAPER - 2

Time Allotted: 3 Hours

Maximum Marks: 186

- Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.
- You are not allowed to leave the Examination Hall before the end of the test.

1. Attempt ALL the questions. Answers have to be marked on the OMR sheets.
2. This question paper contains **Three Sections**.
3. **Section-I** is Physics, **Section-II** is Chemistry and **Section-III** is Mathematics.
4. Each **Section** is further divided into **Two Parts: Part-A & B** in the OMR.
5. Rough spaces are provided for rough work inside the question paper. No additional sheets will be provided for rough work.
6. Blank Papers, clip boards, log tables, slide rule, calculator, cellular phones, pagers and electronic devices, in any form, are not allowed.

B. Filling of OMR Sheet

1. Ensure matching of OMR sheet with the Question paper before you start marking your answers on OMR sheet.
2. On the OMR sheet, darken the appropriate bubble with **Blue/Black Ball Point Pen** for each character of your Enrolment No. and write in ink your Name, Test Centre and other details at the designated places.
3. OMR sheet contains alphabets, numerals & special characters for marking answers.

C. Marking Scheme For All Two Part.

- (i) **PART-A (01-08)** contains (8) Multiple Choice Questions which have **One or More Correct** answer.
Full Marks: +4 If only the bubble(s) corresponding to all the correct options(s) is (are) darkened.
Partial Marks: +1 For darkening a bubble corresponding to **each correct option**, provided NO incorrect option is darkened.
Zero Marks: 0 If none of the bubbles is darkened.
Negative Marks: -1 In all other cases.
For example, if (A), (C) and (D) are all the correct options for a question, darkening all these three will result in **+4 marks**; darkening only (A) and (D) will result in **+2 marks**; and darkening (A) and (B) will result in **-1 marks**, as a wrong option is also darkened.
- (ii) **Part-A (09-12)** – This section contains Two (02) List-Match Sets, each List-Match set has Two (02) Multiple Choice Questions. Each List-Match set has two lists: List-I and List-II. FOUR options are given in each Multiple Choice Question based On List-I and List-II and ONLY ONE of these four options satisfies the condition asked in the Multiple Choice Question. Each question carries **+3 Marks** for correct combination chosen and **-1 marks** for wrong options chosen.
- (iii) **Part-B (01-06)** contains six (06) Numerical based questions, the answer of which maybe positive or negative numbers or decimals (e.g. 6.25, 7.00, -0.33, -.30, 30.27, -127.30) and each question carries **+3 marks** for correct answer. **There is no negative marking.**

Name of the Candidate : _____

Batch : _____ Date of Examination : _____

Enrolment Number : _____

SECTION – I : PHYSICS

(PART – A)

(One or More Than One Options Correct Type)

This section contains **8 multiple choice questions**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONE or MORE THAN ONE is correct**.

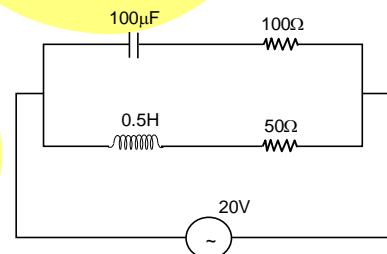
1. An emf is produced in a coil, which is not connected to an external voltage source. This can be due to:
 (A) the coil being in a time-varying magnetic field.
 (B) the coil moving in a time-varying magnetic field.
 (C) the coil is moving in constant magnetic field.
 (D) the coil is stationary in external spatially varying magnetic field, which does not change with time.

1. **ABC**

2. The mutual inductance M_{12} of coil 1 w.r.t. coil 2 is:
 (A) increases when they are brought together.
 (B) depends upon the current passing through the coils
 (C) increases when one them is rotated about an axis.
 (D) is the same M_{21} of coil 2 w.r.t. coil 1.

2. **AD**

3. In the given circuit, the AC source has $\omega = 10$ rad/s. Considering the inductor and capacitor to be ideal, the
 (A) the current through the circuit, I is 0.3 A
 (B) the current through the circuit, I is $0.3\sqrt{2}$ A
 (C) the voltage across $100\ \Omega$ resistor = $10\sqrt{2}$ V
 (D) the voltage across $50\ \Omega$ resistor = 10 V



3. **AC**

4. When a monochromatic point source of light is at a distance of 0.2 m from a photoelectric cell, the cut off voltage and the saturation current are respectively 0.6V and 18.0 mA. If the same source is placed 0.6 m away from the photoelectric cell, then:
 (A) the stopping potential will be 0.2 volt
 (B) the stopping potential will be 0.6 volt
 (C) the saturation current will be 6.0 mA
 (D) the saturation current will be 2.0 mA

4. **BD**

5. Two different coils have self-inductance $L_1 = 8$ mH, $L_2 = 2$ mH. The current in one coil is increased at a constant rate. The current in the second coil is also increased at the same constant rate. At a certain instant of time, the power given to the two coils is the same. At that time the current, the induced voltage and the energy stored in the first coil are I_1, V_1 and W_1 respectively. Corresponding values for the second coil at the same instant are I_2, V_2 and W_2 respectively. Then:

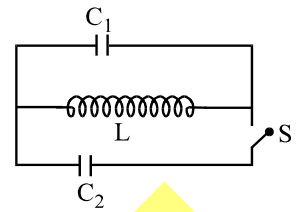
(A) $\frac{I_1}{I_2} = \frac{1}{4}$ (B) $\frac{I_1}{I_2} = 4$ (C) $\frac{W_2}{W_1} = 4$ (D) $\frac{V_2}{V_1} = \frac{1}{4}$

5. **ACD**

6. In young's double-slit experiment, let A and B be the two slits. A thin film of thickness t and refractive index μ is placed in front of A. Let β = fringe width then the central maxima will shift
 (A) towards A
 (B) towards B
 (C) by $(\mu - 1)\frac{\beta}{\lambda}t$
 (D) by $\frac{\mu\beta}{\lambda}t$

6. **AC**

7. At a moment ($t = 0$) when charge on capacitor C_1 is zero and current through inductor I_0 , the switch is closed. Then for $t > 0$,



(A) maximum current through inductor equals I_0 .

(B) maximum current through inductor equals $\frac{C_1 I_0}{C_1 + C_2}$

(C) maximum charge on $C_2 = I_0 C_2 \sqrt{\frac{L}{C_1 + C_2}}$

(D) maximum charge on $C_1 = I_0 C_1 \sqrt{\frac{L}{C_1 + C_2}}$

7. **ACD**

8. Light from a monochromatic source is incident normally on a small photo sensitive surface S having work function ϕ . If power of the source is W and a is the distance between the source and S, then

(A) The number of photons striking the surface per unit time will be $\left(\frac{W\lambda S}{4\pi hca^2}\right)$

(B) The maximum energy of the emitted electrons will be $\frac{1}{\lambda}(hc - \lambda\phi)$

(C) The stopping potential needed to stop the most energetic photons will be $\frac{e}{\lambda}(hc - \lambda\phi)$

(D) Photo emission occurs only if $0 < \lambda \leq (hc / \phi)$

8. **ABD**

This section contains **2 List-Match Sets**, each List-Match set has **2 Multiple Choice Questions**. Each List-Match set has two lists: List-I and List-II. Four options are given in each Multiple Choice Question based On List-I and List-II and **ONLY ONE** of these four options satisfies the condition asked in the Multiple Choice Question.

An optical instrument is made using four different mirror or lens but radius of curvature of each is R and refractive index of material of lens (μ) is 1.5. List-I gives the four different optical instrument (mirror / lens) and list-II of some quantity.

List-I		List-II	
(I)	Convex mirror	(P)	1
(II)	Concave mirror	(Q)	-1
(III)	Convex lens	(R)	2
(IV)	Concave lens	(S)	-2
		(T)	-2/3
		(U)	$-\infty$

9. If the focal length of convex mirror is $R/2$ then the correct match for their focal length in terms of $R/2$.

(A) I - P, II - Q, III - R, IV - S

(B) I - S, II - R, III - Q, IV - P

(C) I - T, II - Q, III - R, IV - S

(D) I - U, II - R, III - Q, IV - P

9. **A**

10. If a point object is placed at 2 distance from concave lens then its image distance is v . The correct match for the image distance in all four case in the unit of v will be
 (A) I – T, II – R, III – U, IV – P (B) I – P, II – Q, III – R, IV – S
 (C) I – Q, II – R, III – S, IV – T (D) I – R, II – S, III – T, IV – U
10. **A**

A light beam is incident on a mirror or lens from left to right as given in List-I. The shape of wavefronts of reflected or refracted light is shown in list-II where light is travelling from wavefront 1 to 2 to 3.

List-I		List-II	
(I)	Convex mirror	(P)	
(II)	Concave mirror	(Q)	
(III)	Convex lens	(R)	
(IV)	Concave lens	(S)	
		(T)	
		(U)	

11. If a parallel light beam is incident from left to right on the mirror or lens as given in list-I, then match the shape of wavefront obtained for the reflected/refracted light given in List-II.
 (A) I – S, II – P, III – R, IV – Q (B) I – P, II – S, III – Q, IV – R
 (C) I – Q, II – R, III – P, IV – S (D) I – R, II – Q, III – S, IV – P
11. **B**
12. If incident light beam is directed towards the focus or away from the focus on to a mirror or lens in a direction from left to right as given in list-I, then match the shape of wavefront obtained for the reflected/refracted light given in List-II.

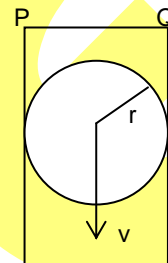
- (A) I – T, II – T, III – R, IV – Q
 (C) I – U, II – U, III – Q, IV – R
- (B) I – T, II – U, III – S, IV – P
 (D) I – U, II – T, III – Q, IV – P
12. **C**

(PART – B)**(Integer Type)**

Part-C (01-06) contains six (06) Numerical based questions, the answer of which maybe positive or negative numbers or decimals (e.g. 6.25, 7.00, -0.33, -.30, 30.27, -127.30) and each question carries **+4 marks** for correct answer and **there will be no negative marking**.

1. A vertical ring of radius 'r' and resistance 'R' slips vertically between two frictionless and resistance less vertical rails. The rails which are joined at top there is uniform magnetic field B perpendicular to plane of ring and the rails.

When speed of ring is v, current induced in section PQ is $\frac{nBrv}{R}$ find n

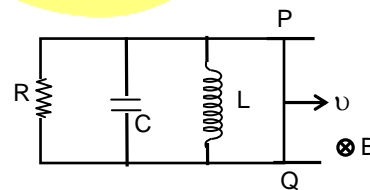


1. **8**

2. A vessel of height 10m is filled with a liquid of refractive index $3/2$. Find the height upto which a liquid should be filled so that filled portion of vessel and empty portion seems of equal height

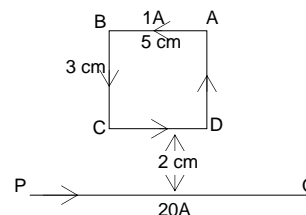
2. **6**

3. In the figure as shown, a conducting wire PQ of length 1 m is moving in a uniform magnetic field $B = 3T$ with constant velocity $v = 2m/sec$ towards right $R = 2\Omega, C = 1F$ and $L = 2H$. The current through resistance capacitor and inductor at any time t are I_1, I_2 and I_3 respectively. Find the value of I_3 (in A) at time $t = 2$ sec.



3. **6**

4. A small rectangular loop of sides 5.0 cm and 3.0 cm carries a current of 1A. It is placed with its longer side parallel to a long straight conductor of length 5 cm at a distance of 2 cm from it. If current in the long conductor is 20 A, find the net force (In micro N) on the loop.



4. **6**

5. A coil of inductance 300 mH and resistance 2Ω is connected to a source of voltage 2V. Find the time when current reaches half of its steady state value.

5. **0.10**

6. The region between $X = 0$ and $X = Lm$ is filled with uniform steady magnetic field $2T\hat{k}$. A particle of mass 2 kg, positive charge 1C and velocity $2(m/s)\hat{i}$ travels along x-axis and enters the region of the magnetic field (neglect gravity). Find the value of L if the particle emerges from the region of magnetic field with its final velocity at an angle 30° to its initial velocity.

6. **1**

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SECTION - II : CHEMISTRY

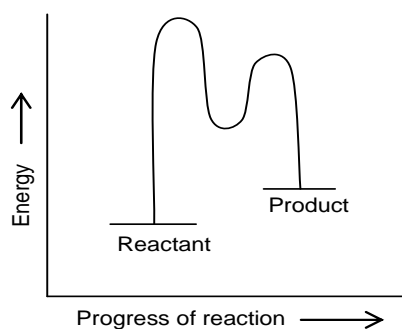
(PART – A)

(One or More Than One Options Correct Type)

This section contains **8 multiple choice questions**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONE or MORE THAN ONE is correct**.

1. Which of the following thermodynamic properties are correctly given for an ideal solution?
 (A) $\Delta H_{\text{mix}} = 0$ (B) $\Delta G_{\text{mix}} = 0$
 (C) $\Delta V_{\text{mix}} = 0$ (D) $\Delta S_{\text{mix}} = 0$

1. AC



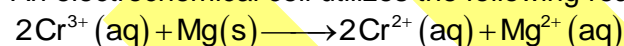
2.

Which of the following statement(s) is/are correct for the forward reaction which energy profile is given above?

- (A) It is an endothermic reaction
 (B) It is an elementary reaction
 (C) If it is an inorganic reaction, then there is a chance of the use of catalyst
 (D) Two transition states are present in the diagram

2. ACD

3. An electrochemical cell utilizes the following reaction:



Which of the following activity(ies) can increase the e.m.f of the cell?

- (A) Cr(II) nitrate is dissolved in the cathode compartment.
 (B) Cr(III) nitrate is dissolved in the cathode compartment.
 (C) The size of the area of Mg(s) electrode is doubled.
 (D) Addition of water to the anode compartment.

3. BD

4. Which of the following characteristic(s) is/are identical for F.C.C and H.C.P unit cells?

- (A) Coordination number (B) Packing fraction
 (C) Effective number of atoms per unit cell (D) Number of voids

4. AB

5. $2\text{NO}(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{NO}_2(\text{g}); \Delta H > 0$

Which of the following factor(s) can increase the yield of NO_2 gas according to above reaction?

- (A) Increasing temperature (B) Increasing pressure
 (C) Adding more O_2 gas (D) Adding a positive catalyst

5. ABC

6. Which of the following activity(ies) can increase the specific, molar and equivalent conductances of an electrolytic solution at the same time?
 (A) Addition of water (B) Addition of foreign ions
 (C) Increasing temperature (D) Increasing atmospheric pressure

6. BC

7. Which of the following feature(s) is/are observed in an ionic solid which shows Schottky defect?
 (A) Density decreases (B) Conductivity increases
 (C) Lattice energy decreases (D) Isotropic character increases

7. ABC

8. The relation between rate constant k and activation energy E_a of a chemical reaction is given as:

$$k = Ae^{-E_a/RT}$$

What do the terms represent in the above equation?

- (A) $\left(\frac{k}{A}\right)$ represents the fraction of molecules crossing the energy barrier.
 (B) 'A' represents the frequency factor.
 (C) 'A' represents the maximum rate constant
 (D) 'k' represents the rate of reaction other than zero order reaction

8. ABC

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Match the following & answer accordingly:

List - I		List- II	
(I)	$C(s) + O_2(g) \rightleftharpoons CO_2(g)$	(P)	Low pressure favours forward reaction
(II)	$2CO(g) + O_2(g) \rightleftharpoons 2CO_2(g)$	(Q)	Reducing the volume of reaction vessel favours forward reaction
(III)	$CO_2(g) + C(s) \rightleftharpoons 2CO(g)$	(R)	Adding O_2 gas favours forward reaction
(IV)	$CaCO_3(s) \rightleftharpoons CaO(s) + CO_2(g)$	(S)	Addition of inert gas at constant pressure favours forward reaction
		(T)	Addition of inert gas at constant volume favours forward reaction
		(U)	Addition of carbon(solid) favours forward reaction

9. The correct matching between list-I and list-II is
 (A) I \rightarrow Q (B) II \rightarrow S
 (C) III \rightarrow P (D) IV \rightarrow T

9. C

10. The correct matching between list-I and list-II is
 (A) I \rightarrow T (B) II \rightarrow U
 (C) III \rightarrow Q (D) IV \rightarrow S

10. D

Match the following & answer accordingly:

List – I		List– II	
(I)	NaCl	(P)	At least one positive ion is present at body centre
(II)	CsCl	(Q)	Negative ions are present at corners and face centres
(III)	CaF ₂	(R)	All the octahedral voids are vacant
(IV)	ZnS	(S)	Positive ions are present at some positions of body diagonal (not at body centre)
		(T)	All the tetrahedral voids are vacant
		(U)	All tetrahedral as well as octahedral voids are vacant

11. The correct matching between list-I and list-II is
 (A) I → R (B) II → P
 (C) III → Q (D) IV → T
11. B
12. The correct matching between list-I and list-II is
 (A) I → U (B) II → Q
 (C) III → P (D) IV → S
12. D

(PART – B)

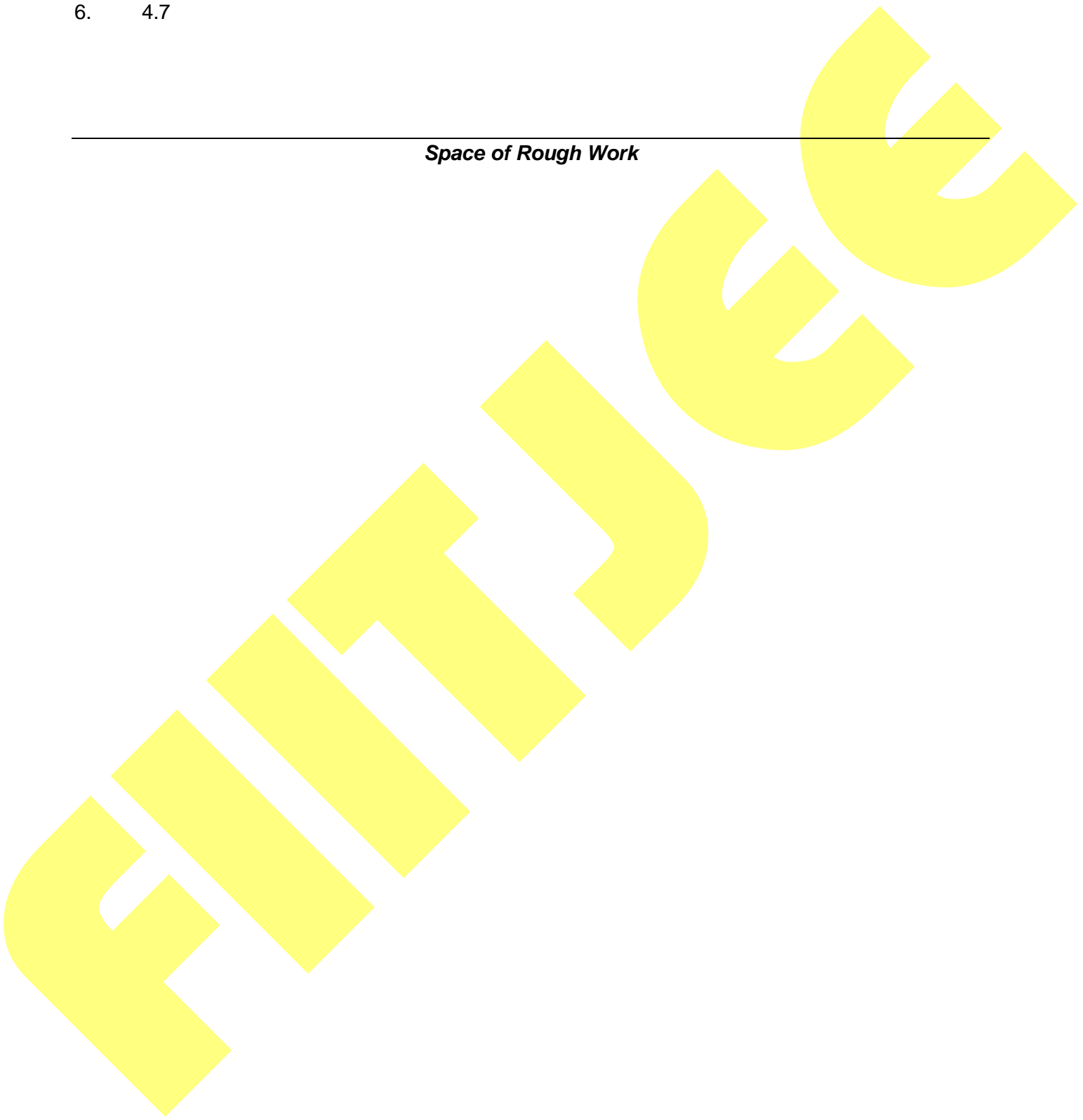
(Integer Type)

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1. If the ratio of molar conductance to equivalent conductance of Mohr's salt is expressed as $x : y$, the value of $(x + y)$ is:
1. 5
2. The edge length of a FCC unit cell is $\frac{8}{\sqrt{3}} \text{ \AA}$. What should be the minimum distance between an octahedral and a tetrahedral void of the unit cell in \AA unit?
2. 2
3. The boiling point of a solvent is 200°C and its K_b value is 50 K Kg mol^{-1} . If the boiling point of 6 m solution of a solute in the solvent is expressed as $100x^\circ\text{C}$, the value of 'x' is
3. 5
4. $2\text{NO}(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{NO}_2(\text{g}); K_p = 0.5 \text{ atm}^{-1}$
 If the equilibrium partial pressure of NO and NO_2 gases are same, what will be the equilibrium partial pressure of O_2 gas in atm unit?
4. 2
5. The half-life of a second order reaction containing one reactant is 2 minute when the reaction starts with 2 M concentration of the reactant. What will be the half-life in minute unit if the reaction starts with 1 M concentration of the reactant?

5. 4
6. 400 mL of 0.4 M CH_3COOH solution was mixed with 400 mL of 0.2 M NaOH solution, What is the pH of the resulting solution? [$\text{p}K_a$ of $\text{CH}_3\text{COOH} = 4.7$]
6. 4.7

Space of Rough Work



SECTION - III : MATHEMATICS

(PART – A)

(One or More Than One Options Correct Type)

This section contains **8 multiple choice questions**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONE or MORE THAN ONE is correct**.

- 1 If $(-1,2)$, $(2,-1)$ and $(3,1)$ are any three vertices of a parallelogram then the fourth vertex (a,b) will be such that
- (A) $a=2, b=0$ (B) $a=-2, b=0$
 (C) $a=-2, b=6$ (D) $a=6, b=-2$

1. **ABCD**

- 2 The equation $(x - \alpha)^2 + (y - \beta)^2 = k(lx + my + n)^2$ represents
- (A) A parabola if $k = \frac{1}{l^2 + m^2}$ (B) An ellipse if $0 < k < \frac{1}{l^2 + m^2}$
 (C) A hyperbola if $k > \frac{1}{l^2 + m^2}$ (D) A point circle if $k = 0$

2. **ABCD**

3. In $\triangle ABC$, $A(-1,-1)$, $B(4,5)$ and third vertex lies on $y = 5(x-3)$. If area of this triangle is $\frac{19}{2}$ then the 3rd vertex is
- (A) $(-5,+10)$ (B) $(5,3)$
 (C) $(5,10)$ (D) $(3,0)$

3. **CD**

- 4 If foci of $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ coincide with the foci of $\frac{x^2}{25} + \frac{y^2}{9} = 1$ and eccentricity of the hyperbola is 2, then
- (A) $a^2 + b^2 = 16$ (B) there is no director circle to the hyperbola
 (C) centre of the director circle is $(0,0)$ (D) length of latus rectum of the hyperbola = 12

4. **ABCD**

- 5 If equation of tangent at P,Q and vertex A of a parabola are $3x + 4y - 7 = 0$, $2x + 3y - 10 = 0$ and $x - y = 0$ respectively, then
- (A) focus is $(4,5)$ (B) length of latus rectum is $2\sqrt{2}$
 (C) axis is $x + y - 9 = 0$ (D) vertex is $\left(\frac{9}{2}, \frac{9}{2}\right)$

5. **ABCD**

6. Image of $(1, 2)$ about line $y = x$ is not
- (A) $(2, 1)$ (B) $(1, 1)$
 (C) $(2, 3)$ (D) $(1, 4)$

6. **BCD**

7. Consider the parabola $y^2 = 4x$ and the ellipse $2x^2 + y^2 = 6$, intersects at P and Q. Tangents and normals at P intersects at T and G respectively then
- (A) the angle between two curves is 90°
- (B) Area enclosed by parabola and chord PQ is $\frac{8}{3}$
- (C) Area of triangle PTG is 4
- (D) Angle between the two curves is 60°

7. **ABC**

8. Given a circle $(x+1)(x+2) + (y-1)(y+3) = 0$. Which of the following statements is true about this circle?

- (A) Radius of circle = $\sqrt{17}$ units
- (B) Radius of circle = $\frac{\sqrt{17}}{2}$ units
- (C) Area of circle = 17π sq. units
- (D) Area of circle = $\frac{17\pi}{4}$ sq. units

8. **BD**

This section contains **2 List-Match Sets**, each List-Match set has **2 Multiple Choice Questions**. Each List-Match set has two lists: List-I and List-II. Four options are given in each Multiple Choice Question based On List-I and List-II and **ONLY ONE** of these four options satisfies the condition asked in the Multiple Choice Question.

	Column-I		Column-II
(I)	The number of tangent(s) to the parabola $y^2 = 8x$ through (2, 1) is	(P)	3
(II)	If PSQ is the focal chord of the parabola $y^2 = 8x$ such that $SP = 6$ then the length SQ is	(Q)	4
(III)	If $2x + y + k = 0$ is a normal to the parabola $y^2 = -8x$, then the value of k is	(R)	0
(IV)	If the line $x - 1 = 0$ is the directrix of the parabola $y^2 - kx + 8 = 0$, then one of the values of k is	(S)	24

9. Which is correct option?

- (A) (I) - S
- (B) (II) - P
- (C) (III) - P
- (D) (IV) - S

9. **B**

	Column-I		Column-II
(I)	The number of tangent(s) to the parabola $y^2 = 8x$ through (2, 1) is	(P)	3
(II)	If PSQ is the focal chord of the parabola $y^2 = 8x$ such that $SP = 6$ then the length SQ is	(Q)	4
(III)	If $2x + y + k = 0$ is a normal to the parabola $y^2 = -8x$, then the value of k is	(R)	0
(IV)	If the line $x - 1 = 0$ is the directrix of the parabola $y^2 - kx + 8 = 0$, then one of the values of k is	(S)	24

10. Which is correct option?

- (A) (I) - R
- (B) (IV) - QRST
- (C) (III) - RS
- (D) (IV) - PQRS

10. **A**

Let the foci of the hyperbola $\frac{x^2}{A^2} - \frac{y^2}{B^2} = 1$ be the vertices of the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ and the foci of the ellipse be the vertices of the hyperbola. Let the eccentricities of the ellipse and hyperbola be e_1 and e_2 respectively.

	Column-I		Column-II
(I)	$\frac{b}{a}$	(P)	1
(II)	$e_1 + e_2$ can not be equal to	(Q)	2
(III)	If the angle between the asymptotes of the hyperbola is $\frac{2\pi}{3}$, then $2e_1 \leq$	(R)	3
(IV)	If $e_1 = \frac{1}{\sqrt{2}}$ and (x,y) is point of intersection of ellipse and hyperbola then $\frac{x^2}{y^2} =$	(S)	4

11. Which is correct option?

(A) (I) - PQ

(B) (II) - PQRS

(C) (IV) - PQRS

(D) (II) - QRST

11. C

Let the foci of the hyperbola $\frac{x^2}{A^2} - \frac{y^2}{B^2} = 1$ be the vertices of the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ and the foci of the ellipse be the vertices of the hyperbola. Let the eccentricities of the ellipse and hyperbola be e_1 and e_2 respectively.

	Column-I		Column-II
(I)	$\frac{b}{a}$	(P)	1
(II)	$e_1 + e_2$ can not be equal to	(Q)	2
(III)	If the angle between the asymptotes of the hyperbola is $\frac{2\pi}{3}$, then $2e_1 \leq$	(R)	3
(IV)	If $e_1 = \frac{1}{\sqrt{2}}$ and (x,y) is point of intersection of ellipse and hyperbola then $\frac{x^2}{y^2} =$	(S)	4

12. Which is correct option?

(A) (I) - PQR

(B) (IV) - PQR

(C) (I) - RST

(D) (IV) - S

12. D

(PART – B)**(Integer Type)**

Part-C (01-06) contains six (06) Numerical based questions, the answer of which maybe positive or negative numbers or decimals (e.g. 6.25, 7.00, -0.33, -.30, 30.27, -127.30) and each question carries **+4 marks** for correct answer and **there will be no negative marking**.

13. The line $3x + 6y = k$ intersects the curve $2x^2 + 2xy + 3y^2 = 1$ at point A and B . The circle on AB as diameter passes through the origin. Then the value of k^2 is

13. **9**

14. If (α, β) is the image of $(3, 8)$ in the line $y = x$ then the value of $\beta - \alpha =$

14. **-5**

15. If the midpoint of a chord of the ellipse $\frac{x^2}{16} + \frac{y^2}{25} = 1$ is $(0, 3)$ and the length of the chord is $\frac{4k}{5}$, then k is

15. **8**

16. If the distance between two parallel tangents having slope m drawn to the hyperbola $\frac{x^2}{9} - \frac{y^2}{49} = 1$ is 2, then the value of $2|m|$ is

16. **5**

17. If PSQ is the focal chord of the parabola $y^2 = 2x$ such that $SP = 6$. Then the length of PQ is

17. **6.54 (6.54 to 6.55)**

18. If lines represented by $2x^2 - ay^2 + 13xy + 32x + 8y + c = 0$ are perpendicular then a equals

18. **2**

Space For Rough Work

FIITJEE COMMON TEST

BATCHES:

PHASE TEST-2: PAPER-2

JEE ADVANCED LEVEL

ANSWER KEY

ANSWER KEYS

PHYSICS

CHEMISTRY

MATHEMATICS

