

STAYHOME#STAYS SAFE

CORONA KO STOP KARO NA

AT LOCKDOWN, UNLOCK YOUR POTENTIAL

PRACTICE TEST – 01

Time: 3 Hours

Maximum Marks: 240

Instructions:

A. Question paper format:

The question paper consists of 3 Section (Chemistry, Physics and Mathematics). Each section has 3 parts.

Part–A:

- (i) It contains 8 multiple choice questions. Each question has 3 choices (A), (B), (C) and (D) for its answer, out of which **only one is correct**.
- (ii) It contains 4 multiple choice questions. Each question has 4 choices (A), (B), (C) and (D) for its answer, out of which **one or more is/are correct**.

Part–B: It contains 2 questions. Each question has four statements (A, B, C and D) given in column I and five statements (p, q, r, s and t) in Column II. Any given statement in column I can have correct matching with **one or more** statements(s) given in column II. For example, if for a given question, statement B matches with the statements given in q and r, then for that particular question, against statement B, darken the bubbles corresponding to q and r in the OMR sheet.

Part–C: It contains 6 questions. The answer to each of the questions is a single–digit integer, ranging from 0 to 9. The answer will have to appropriately bubble in the OMR sheet as per the instructions given at the beginning of the section.

B. Marking scheme:

The question paper consists of 3 parts (Chemistry, Mathematics and Physics). Each section consists of **four types** questions.

- (i) **Single Correct Choice:** You will be awarded **3 marks (Total Marks: 24)** if you darken only the bubble corresponding to the correct answer and **zero mark** if no bubbles are darkened. In all other cases, **minus two (–1) mark** will be awarded.
- (ii) **Multiple Correct Answers Type:** You will be awarded **4 marks (Total Marks: 16)** if you darken only the bubble corresponding to the correct answers and zero mark if no bubbles are darkened. No negative marks will be awarded in this Section.
- (iii) **Matrix– Match Type:** You will be awarded **2 marks (Total Marks: 16)** for each row in which your darkened the bubbles(s) corresponding to the correct answer. Thus each question in this section carries a maximum of **8 marks**. There is **no negative mark** awarded for incorrect answer(s) in this Section.
- (iv) **Integer Answer Type:** You will be awarded **4 marks (Total Marks: 24)** if you darken only the bubble corresponding to the correct answer and **zero mark** if no bubbles are darkened. No negative marks will be awarded in this Section.

Atomic No. : H=1, He=2, Li=3, Be=4, B=5, C=6, N=7, O=8, F=9, Na=11, Mg=12, Al = 13, Si = 14, P = 15, S = 16, Cl = 17, Ar =18, K=19, Ca=20, Cr=24, Mn=25, Fe=26, Co=27, Ni=28, Cu=29, Zn=30, As=33, Br = 35, Ag = 47, Si = 21, Sn = 50, Ti = 22, I = 53, Xe = 54, Ba = 56, Pb = 82, U = 92, V = 50.

Atomic masses: H =1, He=4, Li=7, Be=9, B=11, C=12, N=14, O=16, F=19, Na=23, Mg=24, Al=27, Si=28, P=31, S=32, Cl=35.5, K=39, Ca=40, Cr=52, Mn=55, Fe=56, Co=59, Ni=58.7, Cu=63.5, Zn = 65.4, As = 75, Br = 80, Ag = 108, Sn = 118.7, I = 127, Xe = 131, Ba = 137, Pb = 207, U = 238.

Enrolment No.:

Name: Centre

Batch : Date

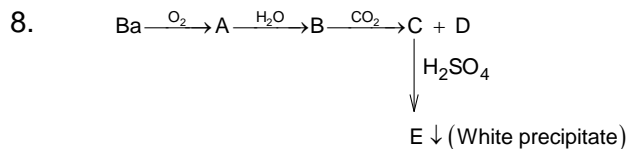
CHEMISTRY**SECTION – I (Single Correct Choice Type)**

This Section contains **8 multiple choice questions**. Each question has four choices A), B), C) and D) out of which **ONLY ONE** is correct.

- 5.3g of carbonate of a monovalent metal is dissolved in 150ml of 1N HCl . Unused acid required 100ml of 0.5N $NaOH$ for complete neutralization. The atomic weight of the metal is
a) 13 b) 24 c) 46 d) 23
- The values IP_1 , IP_2 and IP_3 of H, He and Li respectively are in the ratio
(A) 1: 2 : 3 (B) 3:2:1
(C) 1:4:9 (D) cannot be predicted
- 1 gm of fuming H_2SO_4 (Oleum is a mixture of conc. H_2SO_4 saturated with SO_3 and having the formula $H_2S_2O_7$ is diluted with H_2O This solution is completely neutralized by 27.7 mL of 0.8 N $NaOH$. Find the percentage of free SO_3 in the oleum.
(A) 78.73% (B) 61.85%
(C) 69.73 % (D) 40.73 %
- Which of the following pair of molecule can exist
A) He_2 and Be_2 B) O_2^{-2} and Na_2 C) O_2^{-2} and H_2^{-2} D) Be_2 and Mg_2
- The a/b ratio of four gases A,B,C,D are 43.57, 0.9027, 84.07 and 12.28 respectively. The gas/s which show positive deviation at all pressures and at room temperature is/are
(A) A, C (B) B, D (C) A, B, D (D) Only B
- Bond length of HCl is 1.275 Å (Charge = 4.8×10^{-10} e.s.u.) if experimental dipole moment 1.02 D, then HCl is :
(A) 100% ionic (B) 83% covalent
(C) 50% covalent (D) 40% ionic]
- A solution contained Na_2CO_3 and $NaHCO_3$, 10 mL solution requires 2.5 mL of 0.1 M H_2SO_4 for neutralization using phenolphthalin as indicator. Methyl orange is then

added when a further 2.5 mL of 2M H_2SO_4 was required. The amount of Na_2CO_3 in gm/litres is

- (A) 5.3 (B) 4.2
(C) 10.6 (D) 8.4



The white precipitate 'E' in the above reaction sequence is:

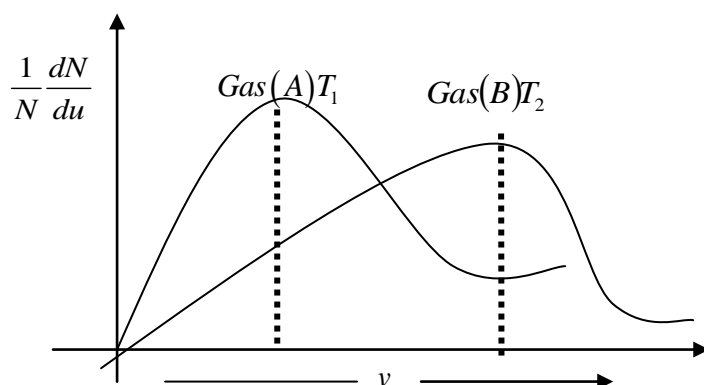
- (A) BaSO_3 (B) BaSO_4
(C) $\text{Ba}(\text{HSO}_4)_2$ (D) BaS

SECTION – II (Multiple Correct Choice Type)

This section contains **4 multiple choice questions**. Each question has four choices A), B), C) and D) out of which **ONE OR MORE** may be correct

9. Which of the following statement(s) is/are correct for a real gas obeying van der Waal's equation: $\left(P + \frac{n^2a}{V^2}\right)(V - nb) = nRT$?
- (A) $\frac{a}{V^2}$ is neglected at high temperature and constant pressure.
 (B) The product Pb is neglected at low pressure and constant temperature.
 (C) 'b' is neglected at high temperature and constant pressure.
 (D) The product PV is neglected at high temperature and constant pressure.
10. The outermost electronic configuration of atom(X) is $4s^24p^2$. Choose correct statements regarding the atom.
- (A) It is paramagnetic in nature
 (B) It contains 10 electrons having azimuthal quantum no. (l) = 2
 (C) It forms four covalent bonds in first excited state.
 (D) Number of electrons present in the s-orbitals of the atom is higher than that present in its p-orbitals.

11.



For the above graph, dream for two different samples of gases at two different temperatures, T_1 and T_2 . Which of the following statement is necessarily true

(A) If $T_2 > T_1$, M_B is necessarily greater than M_A

(B) If $T_1 > T_2$, M_A is necessarily greater than M_B

(C) $\frac{T_2}{M_B} > \frac{T_1}{M_A}$

(D) Nothing can be predicted

12. Pick out the isoelectronic structures from the following;

I. CH_3^+ , II. H_3O^+ , III. NH_3 , IV CH_3^-

(A) I and II

(B) III and IV

(C) I and III

(D) II, III and IV

SECTION-III (Matrix Type)

This Section contains **2 questions**. Each question has **four statements** (A, B, C and D) given in **Column I** and five statements (p, q, r, s and t) in **Column II**. Any given statement in **Column I** can have correct matching with one or more statement(s) given in **Column II**. For example, if for a given question, statement B matches with the statements given in q and r, then for that particular question, against statement B, darken the bubbles corresponding to q and r in the **ORS**.

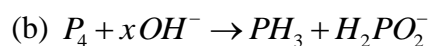
1. Match gases under specified conditions listed in **Column I** with their properties/laws in **Column II**. Indicate your answer by darkening the appropriate bubbles of the 4 x 4 matrix given in the ORS.

Column I		Column II	
(A)	hydrogen gas (P = 200 atm, T = 273 K)	(p)	compressibility factor $\neq 1$
(B)	hydrogen gas (P \approx 0 atm, T = 273 K)	(q)	attractive forces are dominant
(C)	CO ₂ (P = 1 atm, T = 273 K)	(r)	PV = nRT
(D)	CO ₂ (P = 200 atm, T = 273 K)	(s)	P(V - nB) = nRT

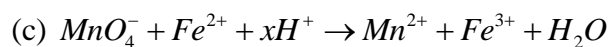
2.

Column-I**Column-II**equation)(value of 'x' in balanced

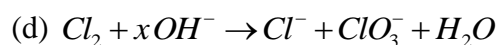
p) 8



q) 4



r) 6



s) 14

SECTION-IV (Integer Type)

This Section contains **6 questions**. The answer to each question is a **single-digit integer**, ranging from 0 to 9. The correct digit below the question no. in the **ORS** is to be bubbled.

1. The stop cock connecting the two bulbs of volume 5 litre and 10 litre containing as ideal gas at 9 atm and 6 atm respectively, is opened. What is the final pressure if the temperature remains same.
2. A 10g mixture of Mg and MgO liberate 5.6 litre of H_2 gas at NTP when completely reacts with excess of dil.HCl. The mass of magnesium in gram present in the mixture is:
3. How many nodal planes are present in π^*_{2py} antibonding molecular orbital
4. How many of the following compound reacts with NaOH
 $Br_2, Al_2O_3, SO_2, P_4, CO_2, BH_3, SiH_4$
5. Calculate the maximum nos of spectral lines in visible region for the electron which is in sixth excited state ?
6. At what temperature the most probable speed of a gas with molecular mass 36 will be same as the r.m.s speed of the gas at 4K?

PHYSICS

SECTION – I (Total Marks : 24)

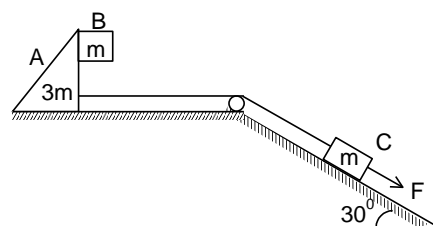
(Single Correct Answer Type)

This Section contains 8 multiple choice questions. Each question has four choices (A), (B), (C) and (D) out of which **ONLY ONE** is correct.

1. The position vector of a particle is determined by the expression $\vec{r} = 3t^2\hat{i} + 4t^2\hat{j} + 7\hat{k}$. The displacement of the particle in the first 10 seconds is

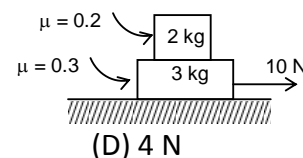
(A) 100 m (B) 150 m (C) 500 m (D) 300 m

2. In the arrangement shown in the figure. The mass of wedge A and that of the block B are $3m$ and m respectively. Friction exists between A and B only. The mass of the block C is m . The force $F = 19.5 m \times g$ is applied on the block C as shown in the figure. The minimum coefficient of friction (μ) between A and B so that B remains stationary with respect to wedge A will be



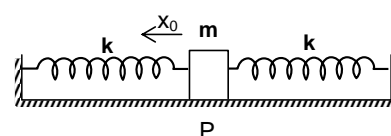
(A) $\frac{2}{5}$ (B) $\frac{1}{10}$
(C) $\frac{2}{5}$ (D) $\frac{1}{4}$

3. Consider the situation as shown in figure, frictional force acting between surface and 3 kg block is



(A) 15 N (B) 10 N (C) 0 N (D) 4 N

4. In the spring mass system shown in the figure, the spring is compressed by $x_0 = mg/3k$ from its natural length and the block is released from rest. The speed of the block, when it passes through the point P, is

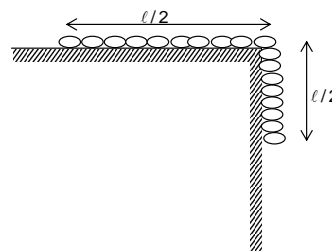


(A) $g\sqrt{\frac{m}{k}}$ (B) $g\sqrt{\frac{2m}{9k}}$
(C) $g\sqrt{\frac{m}{3k}}$ (D) $g\sqrt{\frac{3m}{2k}}$

5. A particle of mass m is projected with velocity u at an angle θ with horizontal. During the period when the particle descends from highest point to the position where its velocity vector makes an angle $\theta/2$ with horizontal, work done by the gravity force is

- (A) $\frac{1}{2} mu^2 \tan^2 \theta/2$ (B) $\frac{1}{2} mu^2 \tan^2 \theta$
 (C) $\frac{1}{2} mu^2 \cos^2 \theta \tan^2 \theta/2$ (D) $\frac{1}{2} mu^2 \cos^2 \theta/2 \sin^2 \theta$

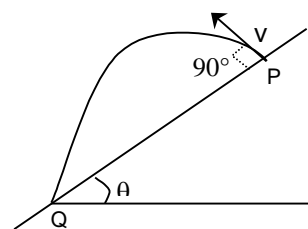
6. Initially, half of the chain's length ($\ell = 4\text{m}$) is overhanging, what will be the speed of the chain when it just slips off the smooth table



- (A) $\sqrt{5g}$ (B) $\sqrt{2g}$
 (C) $2\sqrt{g}$ (D) $\sqrt{3g}$

7. If time taken by the projectile to reach Q is T , then $PQ =$

- (A) $Tv \sin \theta$ (B) $Tv \cos \theta$
 (C) $Tv \sec \theta$ (D) $Tv \tan \theta$



8. Two men who can swim with a speed v_1 in still water start from the middle of a river of width d and move in opposite directions always swimming at an angle θ with the banks. What is the distance between them along the river when they reach the opposite banks, if the velocity of the river is v_2

- (A) $\frac{dv_1}{dv_2} \cot \theta$ (B) $\frac{dv_1 \cos \theta}{v_1 + v_2}$ (C) $\frac{dv_2}{v_1} \tan \theta$ (D) $d \cot \theta$

SECTION – II (Total Marks : 16)
(Multiple Correct Answer(s) Type)

This section contains **4 multiple choice questions**. Each question has four choices (A), (B), (C) and (D) out of which **ONE OR MORE** may be correct.

9. The co-ordinates of a particle moving in a plane are given by $x(t) = a \cos(pt)$ and $y(t) = b \sin(pt)$ where $a, b (<a)$ and p are positive constants of appropriate dimensions. Then

- (A) the path of the particle is an ellipse
- (B) the velocity and acceleration of the particle are normal to each other at $t = \pi/2p$.
- (C) the acceleration of the particle is always directed towards a focus
- (D) the distance travelled by the particle in time interval $t = 0$ to $t = \pi/2p$ is a

10. A particle of mass m moves on the x -axis as follows : it starts from rest at $t=0$ from the point $x=0$, and comes to rest at $t=0$ at the point $x=1$. No other information is available about its motion at intermediate times ($0 < t < 1$). If α denotes the instantaneous acceleration of the particle, then

- (A) α cannot remain positive for all t in the interval $0 \leq t \leq 1$
- (B) $|\alpha|$ cannot exceed 2 at any point in its path
- (C) $|\alpha|$ must be ≥ 4 at some point or points in its path
- (D) α must change sign during the motion, but no other assertion can be made with the information given

11. A reference frame attached to the earth :

- (A) is an inertial frame by definition
- (B) cannot be an inertial frame because the earth is revolving round the sun
- (C) is an inertial frame because Newton's laws are applicable in this frame
- (D) cannot be an inertial frame because the earth is rotating about its own axis.

12. A particle is acted upon by a force of constant magnitude which is always perpendicular to the velocity of the particle. The motion of the particle takes place in a plane. It follows that :

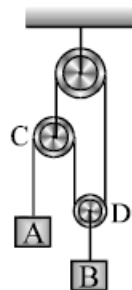
- | | |
|------------------------------------|----------------------------------|
| (A) its velocity is constant | (B) its acceleration is constant |
| (C) its kinetic energy is constant | (D) it moves in a circular path |

SECTION-IV (Total Marks : 16)**(Matrix-Match Type)**

This section contains **2 questions**. Each question has four statements (A, B, C and D) given in **Column I** and **five statements** (p, q, r, s and t) in **Column II**. Any given statement in Column I can have correct matching with **ONE** or **MORE** statement(s) given in Column II. For example, if for a given question, statement B matches with the statements given q and r, then for the particular question, against statement B, darken the bubbles corresponding to q and r in the ORS.

M1:

An arrangement of pulley-mass system is shown in the figure. a_A , a_B , a_C and a_D are acceleration of A, B, C and D respectively. Pulleys and strings are massless. Match the following.



Column-I	Column-II
(A) a_A	(p) g
(B) a_B	(q) $2g$
(C) a_C	(r) $3g$
(D) a_D	(s) $4g$

M2: Trajectories of particle in projectile motion is given as: $y = x - x^2/80$. Here, x and y are in meters. For this projectile motion match the following with $g=10\text{m/s}^2$.

Column-I	Column-II
(A) Angle of projection	(p) 20m
(B) Angle of velocity with horizontal after 4 sec	(q) 80m
(C) Maximum height	(r) 45°
(D) Horizontal range	(s) $\tan^{-1}(\frac{1}{2})$

SECTION-III (Total Marks : 24)

(Integer Answer Type)

This section contains 6 questions. The answer to each of the questions is a **single-digit integer**, ranging from 0 to 9.

The bubble corresponding to the correct answer is to be darkened in the **ORS**.

1. A uniform rope of length l lies on a table. If the co-efficient of friction is 0.25, then the maximum length l_1 of the part of this rope which can over hang from the edge of the table without sliding down .find ratio l/l_1 .

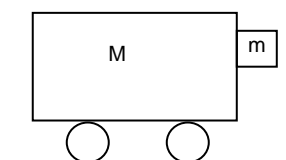
2. The ratio of the range of the same projectile up the inclined plane and down the inclined plane is 4 : 5, for the same projectile, the inclination of the inclined plane from the horizontal level is β , will be $\sin^{-1}(4/n)$. find the value of n .

3. A stationary man observes that the rain is falling vertically downward. When he starts running with a velocity of $2\sqrt{3}$ km/h he observes that the rains is falling at an angle 60° with the vertical. The actual velocity of rain is..... Km/h.

4. A particle of mass m is moving in a circular path of constant radius r such that its centripetal acceleration a_c is varying with time t as $a_c = K^2 \cdot r \cdot t^2$, where k is a constant. The power delivered to the particle by the forces acting on it is $3mK^2 \cdot r^2 t/X$. find the value of X .

5. A wind power generator converts wind energy into electrical energy. Assume that the generator converts a fixed fraction of the wind energy. For wind speed v , the electrical power output will be proportional to V^n . find the value of ' n '.

6. A cart of mass M has a block of mass m attached to it as shown in the figure. The coefficient of friction between the block and cart is μ . The minimum acceleration of the cart so that the block m does not fall is $(x/2\mu)$. Find x .



MATHEMATICS**SECTION– III : (PART-A) (Total Marks: 24) (3, –1)****(Single Correct Choice Type)**

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

- The locus of the point of intersection of the tangents to the circle $x = r \cos \theta$, $y = r \sin \theta$ at points whose parametric angles differ by $\frac{\pi}{3}$ is _____.
(a) $x^2 + y^2 = 4(2 - \sqrt{3})r^2$ (b) $3(x^2 + y^2) = 1$
(c) $x^2 + y^2 = (2 - \sqrt{3})r^2$ (d) None of these
- The number of integral points satisfying all the inequalities simultaneously $2x - y \leq 4$, $x + 2y - 4 \leq 0$ and $5y - 15x + 32 \leq 0$, are
(a) 1 (b) 0 (c) 2 (d) none of these
- Two chords are drawn from the point $P(h, k)$ on the circle $x^2 + y^2 = hx + ky$. If the y -axis divides both the chords in the ratio 2:3, then
(a) $k^2 > 15h^2$ (b) $15k^2 > h^2$ (c) $h^2 = 15k^2$ (d) $k^2 > 5h^2$
- From point P outside of a circle with centre at C tangents PA and PB are drawn such that $\frac{1}{(CA)^2} + \frac{1}{(PA)^2} = \frac{1}{16}$ then length of chord AB is
a) 8 b) 12 c) 16 d) none of these
- The value of $\cot A \cdot \cot(60^\circ + A) + \cot(60^\circ + A) \cdot \cot(120^\circ + A) + \cot(120^\circ + A) \cot A =$
a) 3 b) -3 c) 3/2 d) 1/2
- Let $\frac{\tan x}{1} = \frac{\tan y}{2} = \frac{\tan z}{3} \neq 0$ and $x + y + z = \pi$
Then $\tan x + \tan y + \tan z =$
a) 3 b) 6 c) -3 d) zero

7. If $A \equiv (0, 1)$ and $B(2, 0)$ be two points and 'P' be a point on the line $4x + 3y + 9 = 0$. Co-ordinates of the point 'P' such that $|PA - PB|$ is minimum is

(A) $\left(\frac{3}{20}, -\frac{14}{5}\right)$ (B) $\left(-\frac{3}{20}, \frac{14}{5}\right)$
(C) $\left(\frac{3}{20}, -\frac{12}{5}\right)$ (D) $\left(-\frac{24}{5}, \frac{17}{5}\right)$

8. The number of integral values of λ for which $x^2 + y^2 + \lambda x + (1 - \lambda)y + 5 = 0$ is the equation of a circle whose radius cannot exceed 5, is
(a) 14 (b) 18 (c) 16 (d) None of these

SECTION- III : (PART-A) (Total Marks : 16) (4,0)

(Multiple Correct Answers Type)

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

9. The tangents drawn from the origin to the circle $x^2 + y^2 + 2gx + 2fy + f^2 = 0$ are perpendicular is
(a) $g = f$ (b) $g = -f$ (c) $g = 2f$ (d) $2g = f$
10. A square of side 'a' lies above the x-axis and has one vertex at the origin. The side passing through the origin makes an angle $\alpha \left(0 < \alpha < \frac{\pi}{4}\right)$ with the positive direction of x-axis. The diagonal not passing through the origin.
(a) has the equation $y(\cos \alpha + \sin \alpha) + x(\cos \alpha - \sin \alpha) = a$
(b) has the equation $y(\cos \alpha - \sin \alpha) - x(\sin \alpha - \cos \alpha) = a$
(c) has slope $\tan\left(\alpha - \frac{\pi}{4}\right)$
(d) is at a distance $\frac{a}{\sqrt{2}}$ from the origin

11. A ray of light incident at the point $(-2, -1)$ gets reflected from the tangent at $(0, -1)$ to the circle $x^2 + y^2 = 1$. The reflected ray touches the circle. The equation of the line along which the incident ray moves, is

(a) $4x - 3y + 11 = 0$

(b) $4x + 3y + 11 = 0$

(c) $3x + 4y + 11 = 0$

(d) $4x + 3y + 7 = 0$

12. If $(2, 4)$ is a point interior to the circle $x^2 + y^2 - 6x - 10y + \lambda = 0$ and the circle does not cut the axes at any point, then λ may belong to the interval

(a) $(25, 32)$

(b) $(9, 32)$

(c) $(32, \infty)$

(d) $(25, 30)$

SECTION- III : (PART-B) (Total Marks: 16) (8, 0)

(Matrix-Match Type)

This Section contains **2 questions**. Each question has **four statements** (A, B, C and D) given in **Column I** and **five statements** (p, q, r, s and t) in **Column II**. Any given statement in Column I can have correct matching with **ONE** or **MORE** statement(s) given in Column II. For example, if for a given question, statement B matches with the statements given in q and r, then for the particular question, against statement B, darken the bubbles corresponding to q and r in the ORS.

1. Match the column I and Column II

2. Match the Column I with the values in Column II.

	Column A		Column B
(A)	Locus of point of intersection of the lines $x = at^2$, $y = 2at$	(P)	$x^2 + y^2 = 2a^2$
(B)	Locus of the point of intersection of the perpendicular tangents to the circle $x^2 + y^2 = a^2$	(Q)	$y^2 = 4ax$
(C)	Locus of the point of intersection of the lines $x \cos \theta = y \cot \theta = a$	(R)	$x^2 + y^2 = ax$
(D)	The locus of the mid points of the chords of the circle $x^2 + y^2 - 2ax = 0$ passing through the origin	(S)	$x^2 - y^2 = a^2$

$$\text{Let } \sin \alpha + \sin \beta + \sin \gamma = 0 = \cos \alpha + \cos \beta + \cos \gamma$$

	Column I		Column II
(A)	$\cos^2 \alpha + \cos^2 \beta + \cos^2 \gamma =$	(P)	$3/2$
(B)	$\sin^2 \alpha + \sin^2 \beta + \sin^2 \gamma =$	(Q)	$-3/2$
(C)	$x^{\sin(\alpha+\beta-2\gamma)} + x^{\sin(\beta+\gamma-2\alpha)} + x^{\sin(\gamma+\alpha-2\beta)} =$	(R)	3
(D)	$\cos(\alpha - \beta) + \cos(\beta - \gamma) + \cos(\gamma - \alpha) =$	(S)	$4/3$

SECTION- III : (PART-C) (Total Marks: 24)(4, 0)

(Integer Answer Type)

This section contains 6 questions. The answer to each of the questions is a single-digit integer, ranging from 0 to 9. The bubble corresponding to the correct answer is to be darkened in the ORS.

x	y	z	w
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

- The shortest distance from the point $(2, -7)$ to the circle $x^2 + y^2 - 14x - 10y - 151 = 0$ is _____
- The equation of three sides of a triangle are $x = 2$, $y + 1 = 0$ and $x + 2y = 4$. If coordinate of circumcentre is (α, β) , then $\alpha + \beta$ is equal to _____
- If $ax + y = 1$ intersects the curve $5x^2 - 15y^2 + 3xy + 5 = 0$ in A and B and AB subtends 90° at origin then a^2 is equal to _____
- If $(-3, 2)$ lies on the circle $x^2 + y^2 + 2gx + 2fy + c = 0$, which is concentric with the circle $x^2 + y^2 + 6x + 8y - 5 = 0$, then $c + 20$ is _____

5. If the line $y = \sqrt{3}x$ cuts the curve $x^4 + ax^2y + bxy + cx + dy + 6 = 0$ at A, B, C and D then $OA.OB.OC.OD$ (where O is the origin), is K then $K/16$ equal to _____
6. If the sum of the slopes of the lines given by $4x^2 + 2kxy - 7y^2 = 0$ is equal to the product of the slopes then $|k| =$

ANSWER KEY

CHEMISTRY**PART-A**

- 1.D 2. AC 3. B 4. B 5. B
 6. B 7.A 8.B 9.A , B ,C 10. A,B,C
 11.B,C 12. B, D

PART-B

- M1. A-P,S ,B-R ,C-P,Q ,D-P,S M2. A-S , B-Q ,C-P, ,D-R

PART-C

- 7 2. 6 3.2 4.5 5.5 6 .6

PHYSICS

Answer key : section-I: 1- C 2- C 3-B 4- B 5- C 6-C 7- D 8- D

SECTION-II : 9- (A,B,C) 10-(A,C) 11-(B,D) 12-(C,D)

SECTION-III : M1: (A)-(p), (B)-(p), (C)-(r), (D)-(p)

: M2: (A)-(r), (B)-(s), (C)-(p), (D)-(q)

Section-IV 1- 4 2- 5 3- 6 4- 3 5-2 6- 5

MATHEMATICS**(PART – A)**

1. D 2.B 3.A 4. A
 5. B 6.B 7.D 8 .C
 9.AB 10. A,B 11. B 12. AC

(PART – B)

1. A-Q,B-P,C-S,D-R 2. A-P,B-P,C-R,D-Q

(PART – C)

1. 2 2. 1 3. 1 4. 9
 5. 6 6. 2