

# DETAILED PAPER SOLUTIONS



**LIVE**  **2<sup>nd</sup> Apr - Shift 1**

**2<sup>nd</sup> Apr. Shift-1 Overall Difficulty**

## Memory based Questions

Sr. No.	Subject(s)	Difficulty Level
1.	PHYSICS	Moderate - Difficult
2.	CHEMISTRY	Moderate
4.	MATHS	Moderate (Lengthy)
	<b>Overall</b>	Moderate

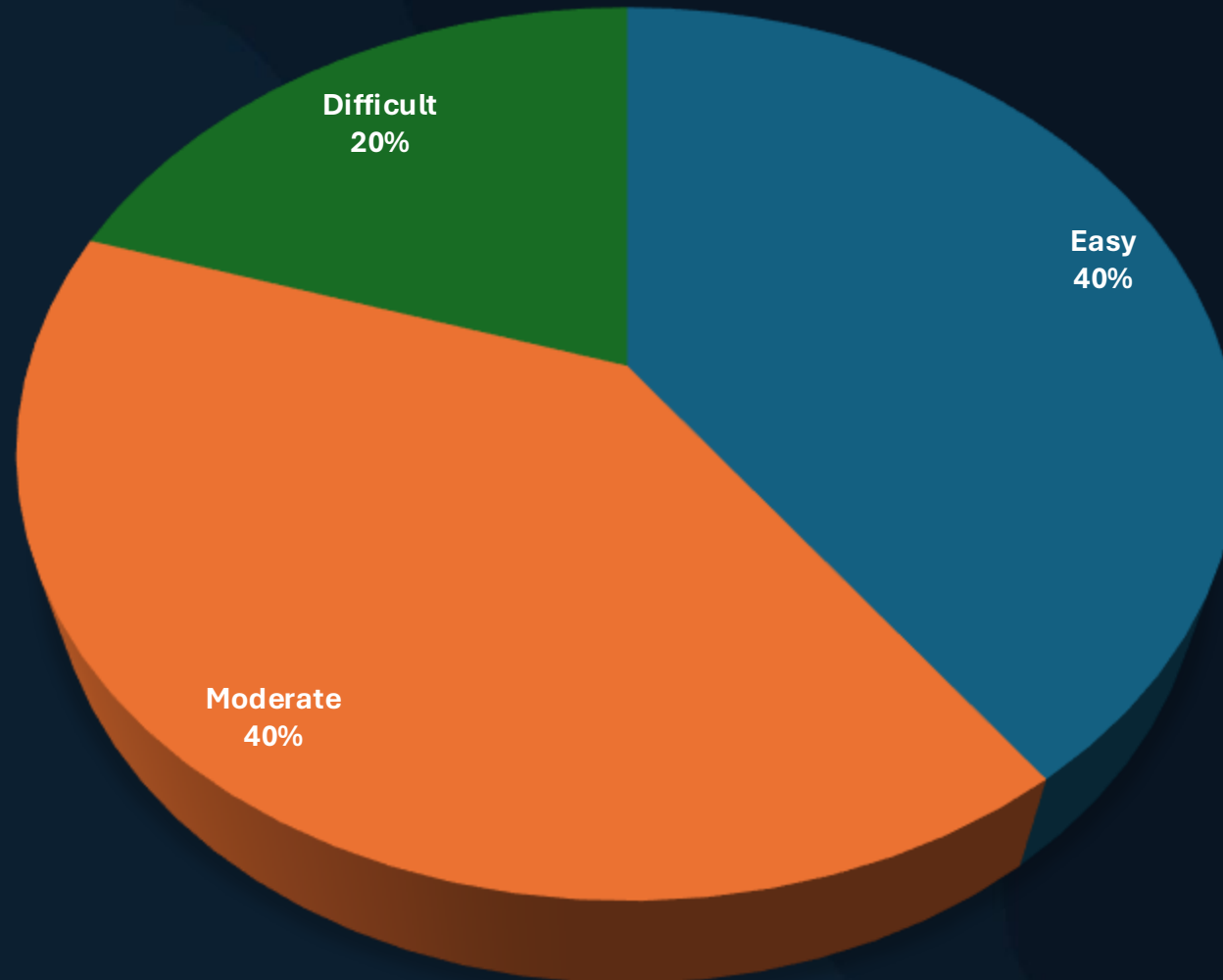
## Memory based Questions

## How was the Maths Paper?

- A. Easy - 5
- B. Moderate - 4
- C. Moderate but Lengthy - 3
- D. Difficult - 2
- E. Very Difficult - 1

# 2<sup>nd</sup> Apr. Shift-1 Overall Difficulty

## Memory based Questions



## 2<sup>nd</sup> Apr. Shift-1 Maths Analysis

### Memory based Questions

Chapter	Weightage	Chapter	Weightage
Sets and Relations	4.4%	Straight Lines and Pair of Straight Lines	3.6%
Logarithm	0.4%	Circle	2.4%
Quadratic Equation and Inequalities	3.2%	Parabola	4%
Sequences and Series	5.2%	Ellipse	3.2%
Binomial Theorem	4.4%	Hyperbola	0.8%
Matrices and Determinants	7.6%	Functions	3.2%
Permutations and Combinations	5.2%	Limits, Continuity and Differentiability	5.2%
Probability	4.8%	Differentiation	0.4%
Vector Algebra	5.6%	Application of Derivatives	2.4%
3D Geometry	6.4%	Indefinite Integrals	2%
Complex Numbers	4%	Definite Integration	4.8%
Statistics	1.6%	Area Under The Curves	4%
Trigonometric Ratio and Identities	1.6%	Differential Equations	5.6%
Inverse Trigonometric Functions	2.8%		

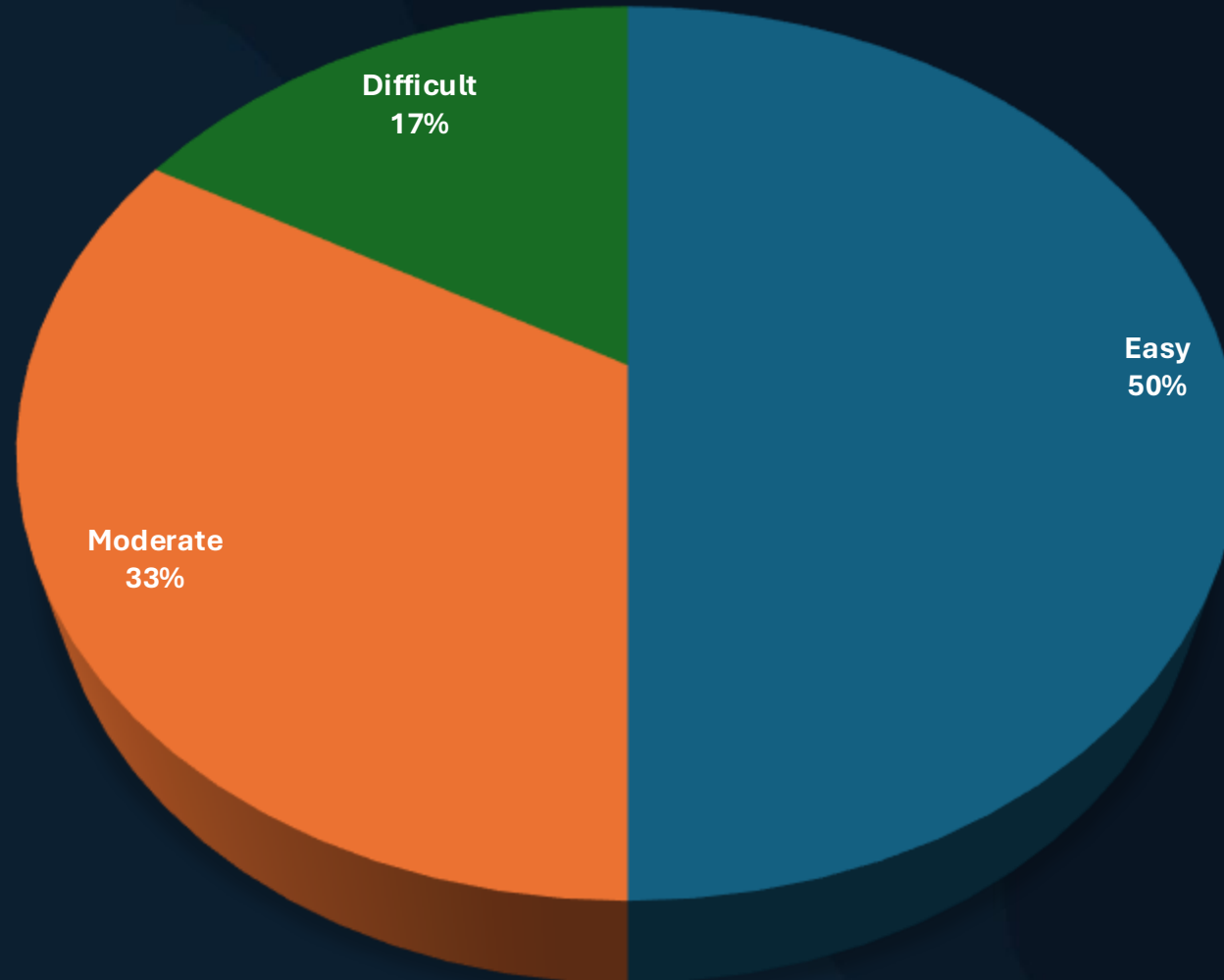
## Memory based Questions

## How was the Physics Paper?

- A. Easy - 5
- B. Moderate - 4
- C. Moderate but Lengthy - 3
- D. Difficult - 2
- E. Very Difficult - 1

# 2<sup>nd</sup> Apr. Shift-1 Physics Analysis

## Memory based Questions



## 2<sup>nd</sup> Apr. Shift-1 Physics Analysis

### Memory based Questions

Chapter	Weightage	Chapter	Weightage
Current Electricity	8%	Semiconductor	3.67%
Heat and Thermodynamics	7.33%	Rotational Motion	3.33%
Properties of Matter	7%	Work Power & Energy	3.17%
Atoms and Nuclei	6.67%	Electromagnetic Induction	2.83%
Units & Measurements	5.50%	Motion in a Straight Line	2.67%
Electrostatics	5.33%	Simple Harmonic Motion	2.50%
Magnetic Effect of Current	5.17%	Electromagnetic Waves	2.50%
Alternating Current	4.33%	Geometrical Optics	2.50%
Laws of Motion	4%	Capacitor	2.33%
Gravitation	4%	Circular Motion	1.83%
Wave Optics	3.83%	Center of Mass and Collision	1.67%
Dual Nature of Radiation	3.83%	Waves	1.50%

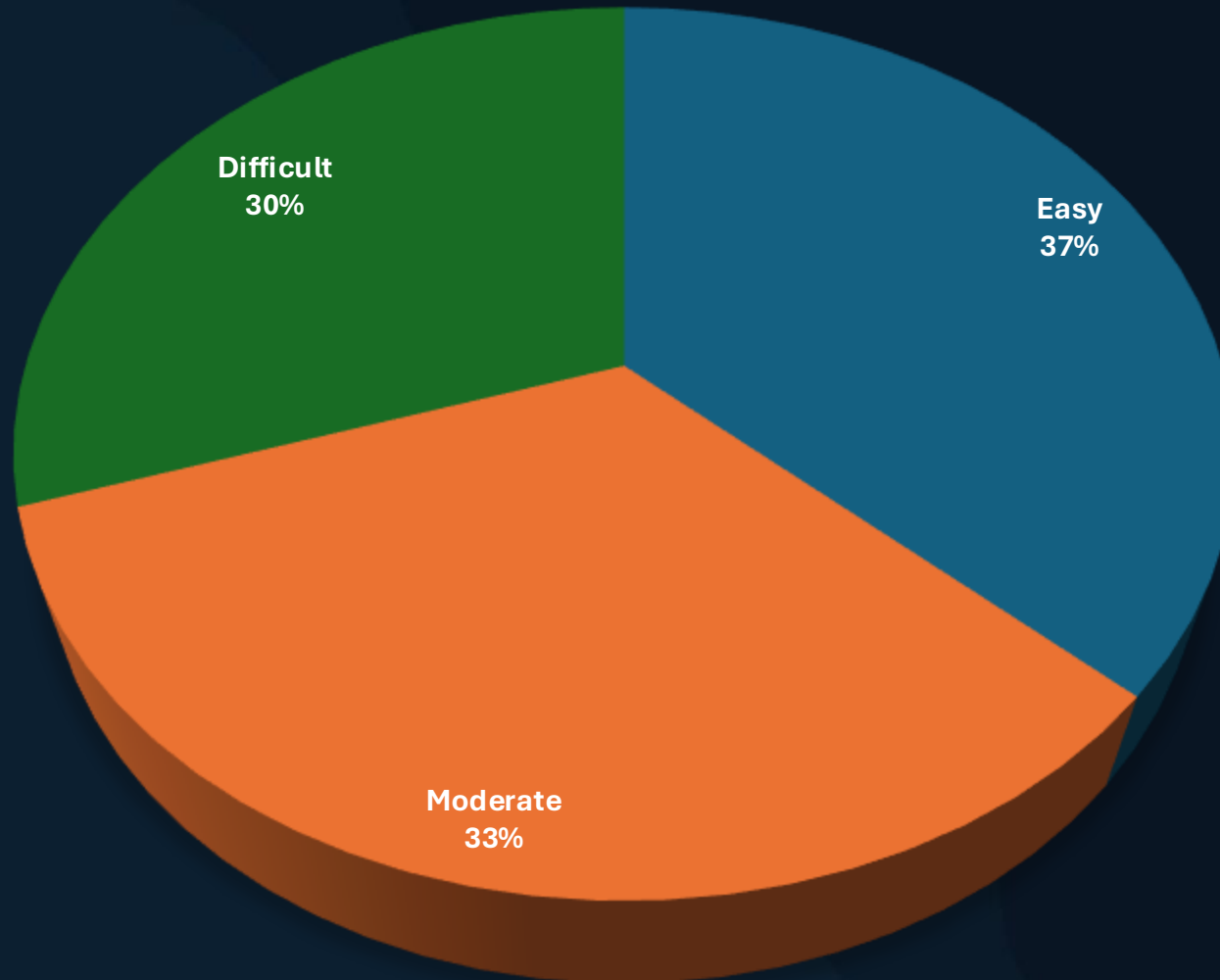
## Memory based Questions

## How was the Chemistry Paper?

- A. Easy - 5
- B. Moderate - 4
- C. Moderate but Lengthy - 3
- D. Difficult - 2
- E. Very Difficult - 1

# 2<sup>nd</sup> Apr. Shift-1 Chemistry Analysis

## Memory based Questions



2<sup>nd</sup> Apr. Shift-1 Chemistry Analysis

## Memory based Questions

Chapter	Weightage	Chapter	Weightage
Some Basic Concepts of Chemistry	5.2 %	d and f Block Elements	5.2 %
Structure of Atom	4.4 %	Coordination Compounds	7.2 %
Redox Reactions	2.4 %	Salt Analysis	2 %
Chemical Equilibrium	2.4 %	Basics of Organic Chemistry	6.8 %
Ionic Equilibrium	3.2 %	Hydrocarbons	5.2 %
Solutions	3.6 %	Haloalkanes and Haloarenes	4.4 %
Thermodynamics	6.8 %	Alcohols, Phenols and Ethers	2 %
Electrochemistry	5.6 %	Aldehydes, Ketones and Carboxylic Acids	5.6 %
Chemical Kinetics and Nuclear Chemistry	5.2 %	Compounds Containing Nitrogen	5.2 %
Periodic Table & Periodicity	6 %	Biomolecules	4.4 %
Chemical Bonding & Molecular Structure	4 %	Practical Organic Chemistry	1.2 %
p-Block Elements	1.6 %		

2<sup>nd</sup> Apr. Shift-1

## Memory Based Questions

?

$$K_{sp} \text{ of } Ag_2CrO_4 = 32x$$

$$K_{sp} \text{ of } AgBr = 4y$$

Then, the ratio of molarity (solubility) of (1) to (2) is:

(a)  $\frac{2\sqrt[3]{x}}{y}$

(b)  $\frac{\sqrt[3]{x}}{\sqrt{y}}$

(c)  $\sqrt{\frac{x}{y}}$

(d)  $2\sqrt{\frac{x}{y}}$

?

Statement I: Bond length of  $O_2^-$ ,  $O_2^{2-}$ ,  $O_2^+$ ,  $O_2^{2+}$

Statement II: unpaired electrons in  $O_2^-$ ,  $O_2^{2-}$ ,  $O_2^+$ ,  $O_2^{2+}$

- 1) Statement I and II both true
- 2) Both False
- 3) Statement I True, Statement II False
- 4) Statement I False, Statement II true.

?

The correct increasing order of bond length among the following is

- 1)  $O_2^+$ ,  $O_2$ ,  $O_2^-$ ,  $O_2^{2-}$
- 2)  $O_2^+$ ,  $O_2$ ,  $O_2^{2-}$ ,  $O_2^-$
- 3)  $O_2^{2-}$ ,  $O_2^-$ ,  $O_2$ ,  $O_2^+$
- 4)  $O_2^-$ ,  $O_2^{2-}$ ,  $O_2^+$ ,  $O_2$



For first order reaction, rate constant at 27°C and  $t^\circ\text{C}$  is  $1.5 \times 10^3$  and  $4.5 \times 10^3$  respectively. If the activation energy of reaction is 60 kJ then find temperature  $t$ .

?

The number of seven digit numbers, that can be formed by using the digits 1, 2, 3, 5, 7 such that each digit is used at least once is

- a) 16800
- b) 15400
- c) 29400
- d) 17800

2<sup>nd</sup> Apr. Shift-1

## Memory Based Questions



Let  $\sin \frac{\pi}{18} \sin \frac{5\pi}{18} \sin \frac{7\pi}{18} = k$ . Then find the value of  $\sin 10k \frac{\pi}{3}$

2<sup>nd</sup> Apr. Shift-1

## Memory Based Questions



$$\lim_{x \rightarrow 2} \frac{\sin(x^3 - 5x^2 + ax + b)}{(\sqrt{x-1} - 1)\log_e(x-1)} = m, \text{ then } a + b + m \text{ is equal to}$$



The velocity of a particle is given as  $\vec{v} = -x\hat{i} + 2y\hat{j} - 2\hat{k}$  m/s. The magnitude of acceleration at point (1,2,4) is \_\_\_\_ m/s<sup>2</sup> ?





Dimensional formula for  $\frac{1}{2} \in E^2$  is given as  $M^a L^b T^c$ . Find the value of  $2a-b+c$ .





The equation of a plane progressive wave is given by

$y = 5\cos \pi \left( 200t - \frac{x}{150} \right)$ . Where  $x$  &  $y$  are in cm and  $t$  is in seconds. Find the wave velocity for the given wave function.