

Physical Sciences

Time : 2½ Hours]

PARTS – A & B

[Max. Marks : 50

Instructions :

1. Answer the questions under Part 'A' on a separate answer book.
2. Write the answers to the questions under Part 'B' on the question paper itself and attach it to the answer book of Part (A).

Time : 2 Hours]

PART – A

[Marks : 35

SECTION – I (Marks : 5 × 2 = 10)

- Note :
- 1) Answer **ANY FIVE** questions, choosing **atleast TWO** from each **GROUP**.
 - 2) Each question carries **TWO** marks.

Group – A

1. Explain the working of a Laundry drier.
2. What are the values of magnetic induction at a distance 'd' on the axial line and on the equatorial line of a Bar magnet ?
3. State the laws of Resistance.
4. What are hardware and software of a Computer ?

Group – B

5. What information does Principal Quantum Number give ?
6. Draw the shape of PCl_5 molecule.
7. 20 ml. of alcohol is mixed with 160 ml. of water. Find the volume percentage of the solution.
8. Write short notes on Pottery.

SECTION – II (Marks : 4 × 1 = 4)

- Note :
- 1) Answer **ANY FOUR** of the following questions.
 - 2) Each question carries **ONE** mark.

9. Define the weight of a body.
10. What is a Damped Vibration ?
11. Mention the isotopes of Ne.
12. Write the Planck's equation. What is the value of Planck's constant ?
13. What is the value of ionic product of water at 25°C ?
14. What is Annealing ?

SECTION – III (Marks : 4 × 4 = 16)

- Note :
- 1) Answer **ANY FOUR** questions, choosing **atleast TWO** from each **GROUP**.
 - 2) Each question carries **FOUR** marks.

Group – A

15. What are the main parts of an actual Laser ?

An electric installation consists of 100 lamps, each drawing 0.2 A at 220 V supply. Find the cost of working of the installation for a month of 30 days at 5 hours a day, if energy is charged at the rate of Rs. 2 per unit.

What is Chain Reaction? How is a chain reaction controlled in a Nuclear Reactor?

Draw the symbol of Transistor. State the properties and uses of a junction transistor.

Group - B

State and explain with one example the Hund's rule of maximum multiplicity.

Explain the formation of a Double Bond.

Write the general electronic configuration of the Inert gases.

What is a Soap? How do you test the quality of soap?

SECTION - IV (Marks : 1 × 5 = 5)

Note : 1) Answer ANY ONE of the following questions.

2) The question carries FIVE marks.

3. Draw a diagram of Screw Gauge and label its various parts.

4. Draw the diagram showing the parts of Sugar Industry.

Time : 30 Minutes]

PART - B

[Marks : 15

Note :

1) Answer all questions.

2) Each question carries $\frac{1}{2}$ mark.

3) Candidates must use the CAPITAL LETTERS while answering the multiple choice questions.

4) Marks will not be awarded in case of any overwriting or re-writing or erased answers.

1. Pick up the correct answer and fill in the bracket with the CAPITAL LETTER of the correct answer chosen.

1. When a body is dropped from a height 'h', then the velocity of the body on reaching the Earth is : ()

- A) $\frac{u^2}{2g}$ B) $\frac{u}{g}$ C) $2gh$ D) $\sqrt{2gh}$

2. The radiations used in Physio-therapy is :

- A) Microwaves B) IR
C) X-rays D) Gamma rays ()

3. The example for diamagnetic substance is ()

- A) Bismuth B) Nickel
C) Iron D) Oxygen

4. Lumen is the unit of ()

- A) Luminous flux
B) Solid angle
C) Luminous intensity
D) Diffraction

5. A medium transmits a sound wave through it, by virtue of its ()

- A) Elasticity B) Inertia
C) Density D) Elasticity and Inertia

6. Among $3p$, $4s$, $3d$ and $4p$, the orbital having the least energy is ()

- A) $4s$ B) $3p$ C) $3d$ D) $4p$

7. During the electrolytic extraction of Mg, the Cathode used is ()

- A) Iron pot B) Graphite
C) KCl and NaCl D) Porcelain tube

8. Solubility of a substance depends on()

- A) Nature of solute B) Nature of solvent
C) Temperature D) All the above

9. The colour of methyl orange indicator in acidic medium is ()

- A) Yellow B) Green
C) Orange D) Red

10. The refractive index of Diamond is()

- A) 4.3 B) 2.45 C) 4.5 D) 5.42

II. **Fill in the blanks :**

11. Ptolemaic theory is also known as
12. Electric motor converts energy into energy.
13. rays are emitted in radioactivity in the electromagnetic spectrum.
14. Distance between a node and the next antinode is
15. When resistances are connected in, the total voltage is divided among them.

16. Alkenes undergo reaction.
17. is the micro -organism used for fermentation of Molasses.
18. and are examples of seeds which give oil.
19. The process of cooling Glass is called
20. The first classification of elements was attempted by

III. **Match the following :**

Group 'A'	PHYSICS	Group 'B'
21. Atomic number	[]	A) Stability of atom
22. Mass defect	[]	B) <i>amu</i>
23. Mass number	[]	C) Number of protons
24. Unit of atomic mass	[]	D) eV
25. Unit of energy	[]	E) Sum of the number of protons and neutrons

Group 'A'	CHEMISTRY	Group 'B'
26. -OH	[]	A) Aldehyde
27. -CHO	[]	B) Amine
28. -COOH	[]	C) Alcohol
29. -NH ₂	[]	D) Ester
30. -COOR	[]	E) Acid