Total No. of Printed Pages : 3

Question Booklet Sl. No.
4402810

GENERAL SCIENCE, Paper – I
(Physical Science)
(English Version)

Time : 2 Hours | Max. Marks : 50

Instructions :

1) Question paper consists of **4** Sections and **17** Questions.
2) Internal choice is available only for Q. No. **12** in Section – **III** and for **all** the questions in Section – **IV**.
3) In the duration of **2** hours, **15** minutes of time is allotted to read the question paper.
4) **All** answers shall be written in the answer booklet only.
5) Answers shall be written **neatly** and **legibly**.

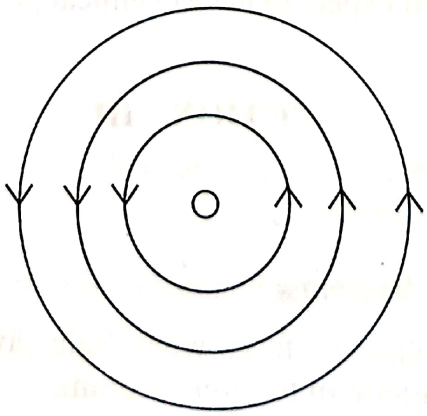
SECTION – I (8×1=8)

Note : 1) Answer **all** the questions.
2) **Each** question carries **1** mark.

1. Write any one use of lenses.

2. Harsha tells Siddhu that the focal length of lens does not depend upon the surrounding medium. But Siddhu knows that Harsha's assertion is wrong and corrected Harsha by asking some questions. Assume and write any one question asked by Siddhu.

3. The direction of current flowing in a coil is shown in the figure. What type of magnetic pole is formed from the face that we are observing ?



4. Which acid is produced in our stomach to help in the digestion of food ?

5. Draw the shape of any d orbital.

6. **Assertion (A)** : In a group from top to bottom, the atomic size increases.
Reason (R) : In the group from top to bottom, the atomic number increases hence number of shells also increases.
Choose the correct option.
A) Both (A) and (R) are true and (R) is correct explanation of (A)
B) Both (A) and (R) are true, and (R) is not correct explanation of (A)
C) (A) is true, (R) is false
D) (A) is false, (R) is true

7. Except Helium, what is the general valence electronic configuration of inert gases ?

8. Ask one question to understand modern periodic table.

SECTION – II (3×2=6)

Note : 1) Answer **all** the questions.
2) **Each** question carries **2** marks.

9. Write any two differences between convex lens and concave lens.

10. Observe the following table and answer the following questions :

Material medium	Refractive index
Air	1.0003
Water	1.33
Kerosene	1.44
Benzene	1.50

1) In which material medium do light travels with lowest speed ?
2) Which medium is optically denser in the given ?

11. Name an element that you would expect to have chemical properties similar to Mg. What are the basis for your prediction ?

SECTION – III (3×4=12)

Note : 1) Answer **all** the questions.
2) **Each** question carries **4** marks.

12. Draw **any one** of the following diagrams.
A) Draw the ray diagrams at plane surfaces when light ray travels from rarer medium to denser medium and denser medium to rarer medium.
B) Draw a neat diagram showing acid solution in water conducts electricity.

13. Observe the table showing quantum numbers and answer the following questions.

n	l	m_l
4	0	1
	1	3
	2	5
	3	7

1) What is the shape of orbital when $l = 0$?
2) How many 'm_l' values are there for $l = 2$?
3) How many maximum number of electrons can be accommodated in $l = 3$ sub shell ?
4) How many maximum number of electrons can be accommodated in n = 4 shell ?

14. Write any four daily life applications of Faraday's law of electromagnetic induction.

SECTION – IV

(3×8=24)

Note : 1) Answer **all** the questions.
2) **Each** question carries **8** marks.
3) **Each** question has **internal** choice.

15. What is hypermetropia ? How do you correct this eye defect ? Explain.

OR

Deduce the expression for the equivalent resistance of three resistors connected in series.

16. Explain the formation of O_2 molecule based on valence bond theory.

OR

Write the general formula of the following functional groups. Give one example for each functional group.

a) Alcohol
b) Aldehyde
c) Ketone
d) Carboxylic acid

17. Explain the procedure of finding specific heat of a solid material experimentally.

OR

Suggest an experiment to prove that the presence of air and water are essential for corrosion of iron metal. Explain the procedure.