

GENERAL SCIENCE, Paper - I

(Physical Science)

(English version)

Parts A and B

Time : 2 hrs. 45 min.]

[Maximum Marks : 40

Instructions :

1. In the time duration of 2 hours and 45 minutes, 15 minutes of time is allotted to read and understand the Question paper.
2. Answer the questions under **Part 'A'** on a separate answer book.
3. Write the answers to the questions under **Part 'B'** on the Question paper itself and attach it to the answer book of **Part 'A'**.
4. Answer **all** questions from the given three sections - I, II, and III of **Part 'A'**.
5. In section - III, every question has internal choice. Answer **any one** alternative.

Part - A

Time : 2 hours

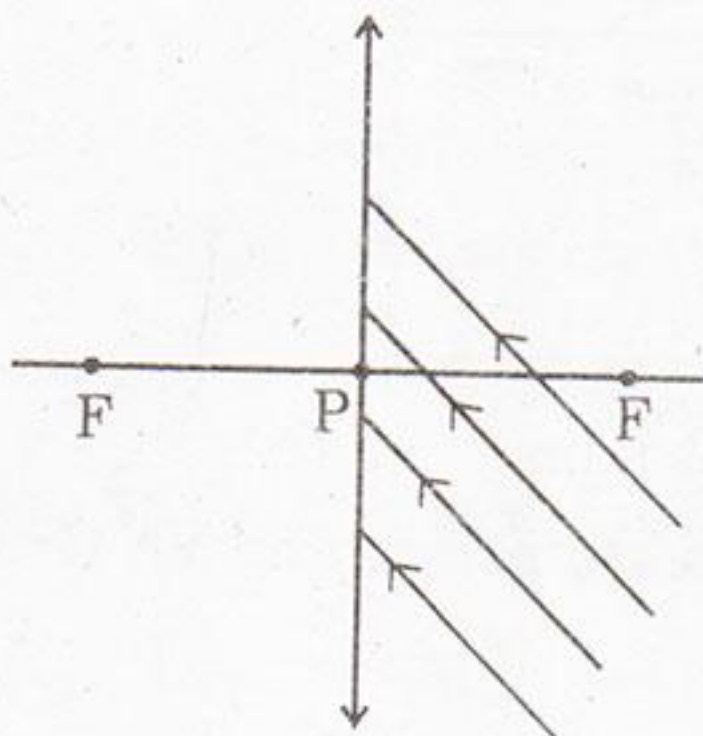
Marks : 35

SECTION - I

- NOTE :**
- (i) Answer **all** the questions.
 - (ii) Each question carries **ONE** mark.
 - (iii) Write the answers in 2 - 3 sentences.

7×1=7

1. State the differences between Virtual image and Real image.
2. Complete the following ray diagram.



3. Write any two uses of spherical mirrors.
4. Does focal length of a spherical mirror changes when it is completely immersed in the water? Predict and write the reason.
5. What happens, if the household electric appliances are connected in series?
6. Draw the structure of Methane molecule and mention bond angle.
7. Write the atomic structure of the following carbon compound.
3, 7-dibromo-4, -6 dichloro - oct-5-ene-1, 2-diol.

SECTION - II

- NOTE :** (i) Answer **all** the questions.
 (ii) Each question carries **TWO** marks.
 (iii) Write the answer in 4 - 5 sentences.

$6 \times 2 = 12$

8. Write any four uses of Washing Soda.
9. Write the electronic configuration of Na^+ and Cl^{-1} .
10. List out the material required for Oersted experiment and mention the precautions to be taken in the experiment.
11. Observe the given table and answer the following question.

Sl.No.	Electron Configuration
1.	$1s^2 2s^2 2p^6 3s^2 3p^3$
2.	$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$
3.	$1s^2 2s^2 2p^6 3s^2 3p^6$

- (1) Mention the divalent element name.
- (2) Name the element belongs to 3rd period and VA Group.

12. Draw a ray diagram showing the correction of myopia eye defect.
13. What happen if dispersion and scattering of light do not occur ?

SECTION - III

- NOTE :** (i) Answer **all** the questions. $4 \times 4 = 16$
- (ii) Each question carries **four** marks.
- (iii) There is an internal choice for each question, only **one** option from each question is to be attempted.
- (iv) Write the answers in 8 to 10 sentences.

14. Write the precautions to be taken in the experiment to show air and water are essential for rusting iron articles, and also write the experimental procedure.

OR

List out the material required in the experiment to show that the electric resistance depends upon the nature of the material and write experimental procedure.

15. Explain the formation of Rainbow.

OR

Explain the working process of induction stove.

16. How many gram of O_2 is required for combustion 480 gram of Mg ? Find the mass of 'MgO' formed in this reaction. (Mg= 24u, O = 16u)

OR

Write the factors that influence Ionization energy and explain any three of them.

17. The magnification of the image formed by the spherical mirror is $m = -1.25$. Based on this information, answer the following questions.

- (i) Which kind of the mirror forms such image ?
- (ii) Write the characteristics of the image.
- (iii) If the size of object is 2 cm, then what is size of the image ?
- (iv) Write the position of the object on the principle axis.

OR

Organic compound	Methane	Ethane	Propene	Butene	Pentyne	Hexyne
Formula	CH_4	C_2H_6	C_3H_6	C_4H_8	C_5H_8	C_6H_{10}

Observe the above table and answer the following questions.

- (1) Write the general formula of Alkanes.
 - (2) Mention the names of unsaturated hydrocarbons.
 - (3) Write the homologous series of Alkynes.
 - (4) Write the formula of Hexyne.
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Time : 2 hrs. 45 min.]

[Maximum Marks : 40

Instruction : Write the answers to the questions in this **Part-B** on the Question paper itself and attach it to the answer book of **Part-A**.

Part - B

Time : 30 min.

Marks : 5

NOTE :

1. Answer **all** the questions.
2. Each question carries $\frac{1}{2}$ mark.
3. Marks will **not** be awarded in any case of over-written, rewritten or erased answers.
4. Write the CAPITAL LETTER (A, B, C, D) showing the correct answer for the following questions in the brackets provided against them.

1. A bi-convex lens converges the parallel rays on the principle axis at 10 cm, then the focal length is ... []

- (A) 5 cm
(B) 10 cm
(C) 20 cm
(D) 25 cm

2. Which part of the human eye controls the entering the light rays into the eye ? []

- (A) Iris
- (B) Aqueous humour
- (C) Cornea
- (D) Eye lens

3. Which of the following is used to purify drinking water ? []

- (A) Plaster of Paris
- (B) Washing Soda
- (C) Baking Soda
- (D) Bleaching powder

4. Which of the following shell have maximum 32 electrons ? []

- (A) N
- (B) M
- (C) L
- (D) K

5. IUPAC name of the compound $\text{CH}_3\text{-CCl}_2\text{-CBr}_2\text{-CH=CH}_2$ is []

- (A) 2, 2-dichloro-3, 3-dibromo pent-1-ene
- (B) 3, 3-dibromo pent-1-ene
- (C) 3, 3-dibromo-4, 4-dichloro pent-2-ene
- (D) 3, 3-dibromo-4, 4-dichloro pent-1-ene

6. The chemical is used in fire extinguishers. []
- (A) Sodium chloride.
 - (B) Bleaching powder.
 - (C) Sodium bicarbonate.
 - (D) Plaster of Paris.
7. Which of the following is a balanced equation ? []
- (A) $\text{Mg} + \text{O}_2 \rightarrow \text{MgO}$
 - (B) $\text{C} + \text{O}_2 \rightarrow \text{CO}$
 - (C) $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$
 - (D) $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$
8. 11, 12, 13 and 14 are the atomic numbers of the elements Na, Mg, Al and Si respectively. Which element have more atomic radius ? []
- (A) Na
 - (B) Mg
 - (C) Al
 - (D) Si
9. Which of the following compound formed by ionic bond ? []
- (A) H_2O
 - (B) NH_3
 - (C) MgO
 - (D) HCl

10. Which of the following situation does the current will be induced ? [1]

