

This Question Paper contains 4 Printed Pages.

New Pattern

19E(A)

GENERAL SCIENCE, Paper - I

(Physical Science)

(English version)

Parts A and B

Time : 2 hr. 45 min]

[Maximum Marks : 40

Instructions :

1. This paper contains **Part-A** and **Part-B**.
2. **Part-A** contains 3 sections, answer the questions under **Part-A** on separate answer book. Write the answers to the questions under **Part-B** on the question paper itself and attach it to the answer book of **Part-A**.
3. Answer all the questions. Internal choice to the questions is given under Section-III.
4. In the duration of 2 hours 45 minutes, 15 minutes of time is allotted to read the question paper.

Part - A

Time : 2 Hours

Marks : 30

Instructions :

1. **Part-A** comprises of **THREE** sections I, II and III.
2. All the questions are **compulsory**.
3. There is no over-all choice. However, there is an internal choice to the questions under Section-III.

SECTION - I

- NOTE :**
- (i) Answer **all** the questions.
 - (ii) Answer each question in 1 or 2 sentences.
 - (iii) Each question carries **ONE** mark.

4×1=4

1. Give an example for displacement reaction.

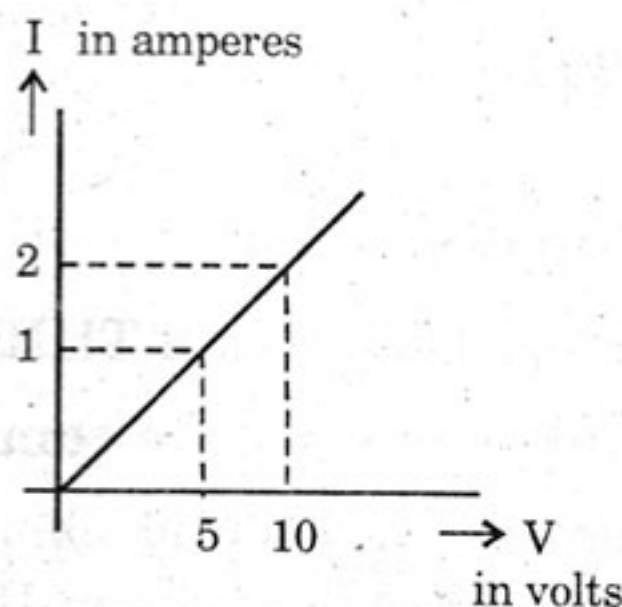
2. Write any two questions about the 'formation of mirages'.
3. What physical quantity can be found in an experiment done with prism ?
4. Out of $3d$ and $4s$, which has more $(n+l)$ value ? Explain.

SECTION - II

NOTE : (i) Answer **all** the questions. $5 \times 2 = 10$
 (ii) Answer each question in 4 to 5 sentences.
 (iii) Each question carries **TWO** marks.

5. Ravi wants to make a lens. Which formula he has to follow ? Write the formula and explain the terms in it.
6. A light yellow coloured compound 'X' is exposed to sunlight for sometime. It is turned into gray coloured material. What is the name of 'X' ? Predict the type of chemical reaction occurred in it.

7. Observe the graph of potential difference (V) drawn between two ends of a conductor and current (I) passing through it. Answer the following questions :



- (a) Which law is used to explain the graph ? State it.
- (b) What is the resistance of the conductor ?
8. Anand appreciated the law behind the making of 'generator'. Name the law and state it.
9. Define mineral. Mention any two ores of 'magnesium'.

SECTION - III**NOTE :** (i) Answer **all** the questions.

4×4=16

(ii) Answer each question in 8-10 sentences.

(iii) There is internal choice for each question.

(iv) Only one option from each question is to be attempted.

(v) Each question carries **FOUR** marks.**10.** Sudheer wants to find focal length of a concave mirror experimentally.

(a) What apparatus does he need ?

(b) Is the screen required or not ? Explain.

(c) Draw the table required to tabulate the values found in his experiment.

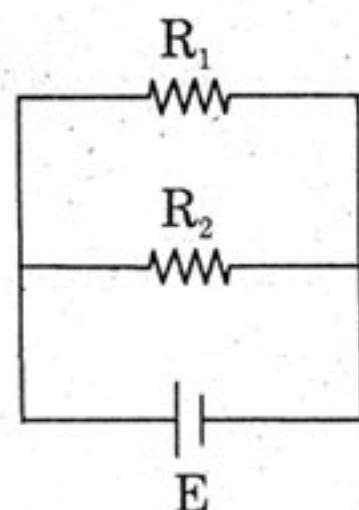
(d) What is the formula used by him to find focal length ?

OR

Write an activity to show that the focal length of a lens depends on its surrounding medium.

11. What is Ionisation Energy ? Explain the factors that effect Ionisation Energy.**OR**What is Hybridisation ? Explain the formation of BeF_2 molecule using hybridisation.**12.** Observe the given circuit. R_1 and R_2 are two resistors and $R_1 = R_2 = 4\Omega$. Emf of the battery E is 10 V.

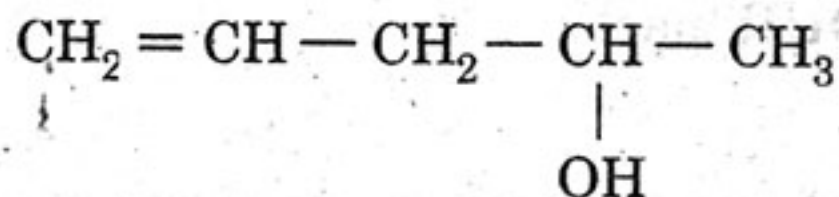
Answer the following questions.

(a) How are the resistors R_1 and R_2 connected in the circuit ?

[4]

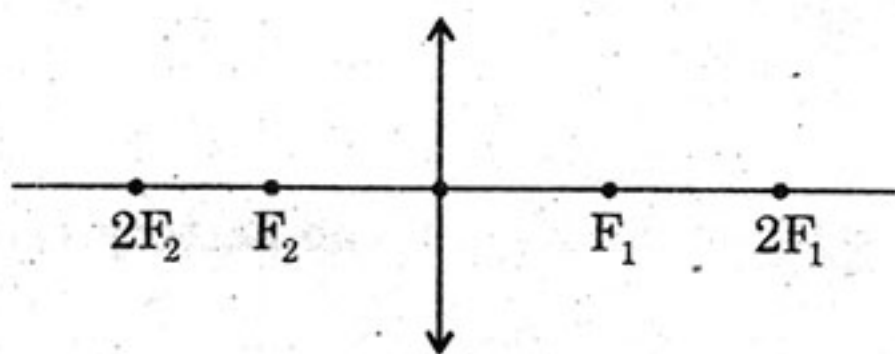
- (b) What is the potential difference across R_1 ?
- (c) What is the effective resistance of the circuit ?
- (d) What is the total current drawn from the battery ?

OR



Observe the given carbon compound and answer the following questions.

- (a) Give numbering to the carbons in the given compound according to IUPAC rules. (Write in answer book)
 - (b) Name the functional group present in the given compound.
 - (c) Name the word root for the given carbon compound.
 - (d) Write the IUPAC name of the given compound.
13. Complete the ray diagram when an object is placed between F_2 and $2F_2$.
(Answer it on answer sheet).



OR

Draw a diagram showing the increasing value of $(n+l)$ of orbitals.

19E(B)

GENERAL SCIENCE, Paper - I

(Physical Science)

(English version)

Parts A and B

Time : 2 hours 45 min.]

[Maximum Marks : 40

NOTE :

*Write the answers to the questions under **Part-B** on the question paper itself and attach it to the answer book of **Part-A**.*

Part - B


Time : 30 min.]

[Marks :10

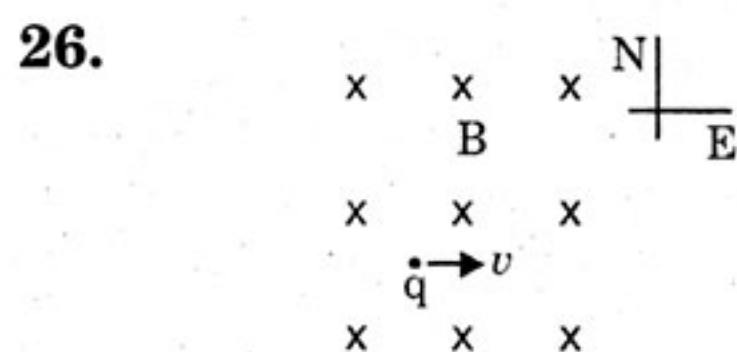
SECTION - IV

Instructions :

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.
14. If a solution converts red litmus into blue colour,
then its pH value is []
- (A) 1
(B) 4
(C) 5
(D) 10
15. The bond angle in beryllium chloride is []
- (A) 120°
(B) 110°
(C) 180°
(D) 104.31°

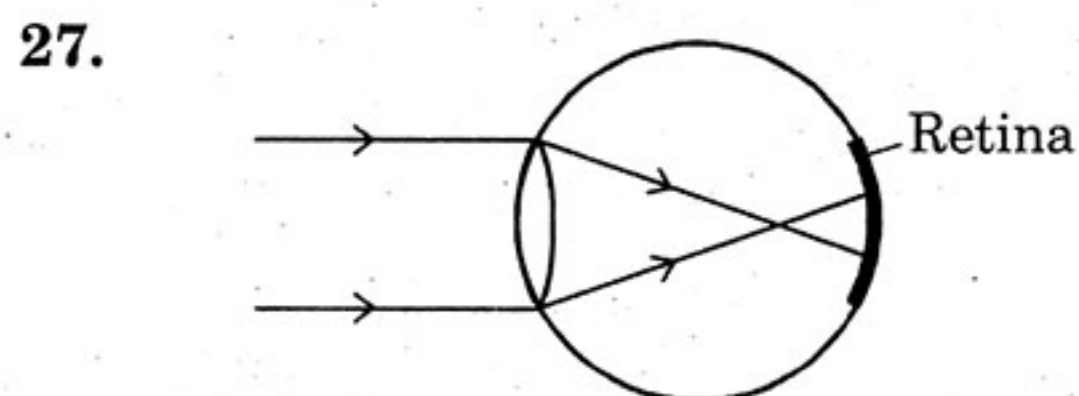
16. The speed of light in vacuum is []
 (A) 3×10^8 m/s (B) 2.5×10^8 m/s
 (C) 3.1×10^8 cm/s (D) 10^8 m/s
17.  Name of the lens shown in the figure is []
 (A) biconvex lens (B) biconcave lens
 (C) concavo-convex lens (D) plano-convex lens
18. The quantum number which explains about size and energy of the orbit is []
 (A) n
 (B) l
 (C) m_l
 (D) m_s
19. The orbital which is in double dumbell shape. []
 (A) s (B) p
 (C) d (D) f
20. Number of elements present in 2nd period of the modern periodic table is []
 (A) 2 (B) 18
 (C) 32 (D) 8
21. Which of the following is the most reactive metal ? []
 (A) Lithium (B) Zinc
 (C) Potassium (D) Rubidium
22. The number of σ - bonds in CH_4 molecule is []
 (A) 2 (B) 3
 (C) 4 (D) 1

23. The shape of H_2O molecule is []
 (A) Linear (B) V - shape
 (C) Trigonal bipyramidal (D) Trigonal pyramidal
24. The impurity present in the ore is called as []
 (A) Gangue (B) Flux
 (C) Slag (D) Mineral
25. Which of the following hydrocarbon can show isomerism ? []
 (A) C_3H_8 (B) C_2H_4
 (C) C_4H_{10} (D) C_2H_6



As shown in the figure, a positive charge ' q ' moves at a speed ' v ' in a constant uniform magnetic field directed into the page. The direction of velocity is perpendicular to the direction of magnetic field. The direction of magnetic force on the charge ' q ' is

- (A) Due north (B) Due south
 (C) Due west (D) Due east



See figure. Parallel rays of light fall on eye and they converge before the retina. It represents a certain defect in the eye.

To correct it, lens is used.

- (A) Bi convex (B) Bi concave
 (C) Convex or Concave (D) Concavo-convex

28. In electrolysis of water experiment, the ratio of volumes of oxygen and hydrogen gases evolved is []

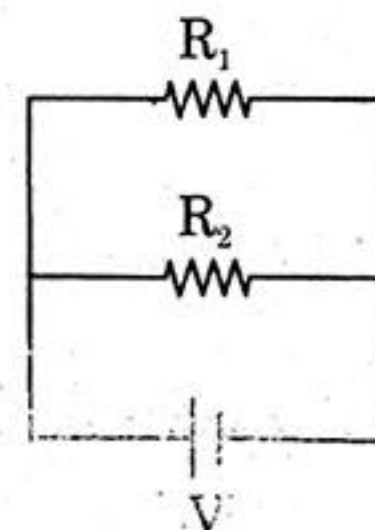
- (A) 1 : 2 (B) 2 : 1
(C) 1 : 1 (D) 3 : 1

29. Ravi added acid to the metal hydrogen carbonate and observed the gas evolved. The evolved gas is []

- (A) O_2 (B) N_2
(C) H_2 (D) CO_2

30. Observe the circuit. The power consumed by the resistor R_2 is P . The power consumed by the resistor R_2 when the resistor R_1 is removed from the circuit is (Take $R_1 = R_2$). []

- (A) $2P$ (B) $P/2$
(C) P (D) $4P$



31. Doctor tested the eyes of Rajkumar and identified that he had hypermetropia. The distance of nearpoint is 50 cm. The power of the lens suggested by the doctor to him is []

- (A) $-2D$ (B) $+1D$
(C) $-1D$ (D) $+2D$

32. Statement A : Evaporation is a cooling process.
Statement B : Boiling is a warming process.

Which one of the following is true ? []

- (A) A is true and B is true.
(B) A is true and B is not true.
(C) A is false and B is true.
(D) A is false and B is false.

33. A student experimented by using a concave mirror with focal length 10 cm. But accidentally, it slipped off his hands and is broken. He did experiment with larger piece of that mirror. The focal length obtained in his experiment is []

- (A) 5 cm (B) 10 cm
(C) 15 cm (D) 20 cm