This Question Paper contains 4 printed pages. **19E (A)**

GENERAL SCIENCE, Paper-I

(Physical Sciences)

(English Version)

Parts A and B

Time : 2½ Hours **Maximum 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'**.*

Part A

Time : 2 Hours ***Marks : 35***

SECTION I

5 × 2 = 10

Notes : 1. Answer **any five** questions, choosing at least **two** from each group.

2. Each question carries **two** marks.

Group - A

1. What role does specific heat play in keeping a watermelon cool for a long time after removing it from a fridge on a hot day? Explain.

2. State any two differences between real and virtual images.

3. Write the lens Maker's formula and explain the terms in it.

4. A force of 8N acts on a rectangular conductor 20 cm long placed perpendicular to a magnetic field. Determine the magnetic field induction if the current in the conductor is 40 A.

Group - B

5. A shiny brown colored element '*X*' on heating in air becomes black in color. Can you predict the element '*X*' and the black colored substance formed? How do you support your predictions?

6. What is neutralization reaction? Give two examples.

7. What is the difference between roasting and calcination? Give one example for each.

8. An element has atomic number 19. Where would you expect this element in the periodic table? Why?

SECTION II

$4 \times 1 = 4$

Notes : 1. Answer **any four** questions from the following.

2. Each question carries **one** mark.

9. Which mirror is used as rear-view mirror in the vehicles?

10. Find the speed of light in a transparent medium, whose refractive index is 3/2.

11. Define the power of lens.

12. $Fe_2O_3 + 2Al \longrightarrow Al_2O_3 + 2Fe$

Name the compound which is oxidized in the above reaction.

13. Write the electronic configuration of chromium.

14. Which method is suitable to enrich sulphide ores ?

SECTION III

$4 \times 4 = 16$

Notes : 1. Answer **any four** questions, choosing at least **two** from each group.

2. Each question carries **four** marks.

Group - A

15. Kavya can see distant objects clearly but cannot see objects at near distance. With what eye defect is she suffering? Draw the diagrams showing the defected eye and its correction.

16. How the optical fibres are working? What are the various uses of optical fibres in our daily life?

17. Find the radii of curvature of a convexo-concave convergent lens made of glass with refractive index $n = 1.5$ having focal length of 24 cm. One of the radii of curvature is double than the other.

18. State Ohm's law. Suggest an experiment to verify it and explain the procedure.

Group - B

19. Five solutions A, B, C, D and E when tested with universal indicator showed pH as 4, 1, 11, 7 and 9 respectively, which solution is .....

A) neutral

B) strongly alkaline

C) strongly acidic

D) weakly acidic

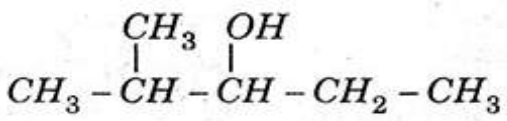
E) weakly alkaline

Arrange the pH in increasing order of hydrogen ion (H^+) concentration.

20. What is hybridization? Explain the formation of Boron trifluoride (BF_3) molecule by hybridization.

21. How do you appreciate the role of electronic configuration of the atoms of elements in periodic classification?

22. Write IUPAC names for the following carbon compounds.

A)


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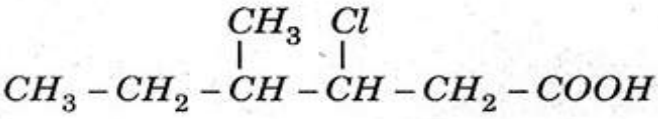

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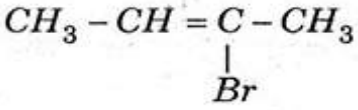

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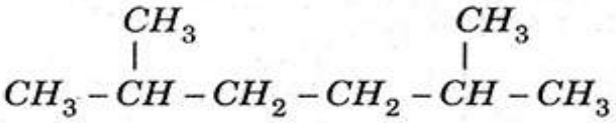

SECTION IV

$1 \times 5 = 5$

Notes : 1. Answer **any one** of the following questions.

2. Each question carries **five** marks.

23. Draw a neat diagram of electric motor. Name the parts.

24. Draw a neat diagram showing acid solution in water conducts electricity.

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GENERAL SCIENCE, Paper-I

(Physical Sciences)

(English Version)

Parts A and B

Time : 2½ Hours **Maximum Marks : 50**

Part B

Attach **Part 'B'** question paper to the main answer book of **Part 'A'**.

Time : 30 Minutes ***Marks : 15***

Instructions :

1. *Answer **all** questions.*
2. *Each question carries ½ mark.*
3. *Answers are to be written in the question paper only.*
4. *Marks will not be awarded in case of any overwriting, rewriting or erased answers.*

I. Write the 'CAPITAL LETTER' showing the correct answer for the following questions in the brackets provided against them. **20 × ½ = 10**

1. Specific heat S = ... [ ]

(A) $Q / \Delta t$ (B) $Q\Delta t$

(C) $\frac{Q}{m\Delta t}$ (D) $\frac{m\Delta t}{Q}$

2. We get a diminished image with a concave mirror, when the object is placed ..... [ ]

(A) at Focal point (F)

(B) between the Pole (P) and Focal point (F)

(C) at the center of a Curvature (C)

(D) beyond the center of a Curvature (C)

3. At a critical angle of incidence, the angle of refraction is ..... [ ]

(A) 45^0 (B) 180^0

(C) 90^0 (D) 30^0

4. Focal length (f) of the plano-convex lens is ....., when its radius of curvature of the surface is R and n is the refractive index of the lens. [ ]

(A) $f = R$ (B) $f = R/2$

(C) $f = R/(n-1)$ (D) $f = (n-1)/R$

5. During refraction ..... will not change. [ ]

(A) frequency (B) wavelength

(C) speed of light (D) all of these

6. Myopia can be corrected by using ..... [ ]

(A) convex mirror (B) concave mirror

(C) double convex lens (D) double concave lens

7. A charge is moved from a point A to a point B. The work done to move unit charge during this process is called ..... [ ]

(A) potential at A

(B) potential at B

(C) potential difference between A and B

(D) current from A to B

8. A circuit draws a current of 2 A from a 12 V battery, its resultant resistance is ..... [ ]

(A) 12Ω (B) 2Ω

(C) 6Ω (D) 18Ω

9. Which one of the following converts mechanical energy into electrical energy? [ ]

(A) Generator (B) Battery

(C) Motor (D) Switch

10. The blue color of sky is due to ..... [ ]

(A) diffraction of light (B) interference of light

(C) polarization of light (D) scattering of light

11. The reaction for formation of hydrogen chloride from hydrogen and chlorine represents following type of chemical reaction. [ ]

(A) Decomposition (B) Displacement

(C) Double displacement (D) Combination

12. Which gas is produced when metal carbonates react with acids? [ ]

(A) Oxygen (B) Carbon dioxide

(C) Nitrogen (D) Hydrogen

13. The maximum number of electron that can be accommodated in the '*L*' shell of an atom is ..... [ ]

(A) 8 (B) 4

(C) 2 (D) 16

14. Electrons enters into ..... orbital after filling the 3*d* orbital. [ ]

(A) 4*s* (B) 5*s*

(C) 4*p* (D) 5*p*

15. Which one of the following element belongs to 3rd period and III A group? [ ]

(A) Sodium (B) Potassium

(C) Aluminium (D) Argon

16. Number of elements present in 3rd period of the long form of periodic table. [ ]

(A) 2 (B) 8 (C) 18 (D) 32

17. Which one of the following types of medicines is used for treating indigestion? [ ]

(A) Antibiotic (B) Analgestic

(C) Antacid (D) Antiseptic

18. The ore of aluminium is ..... [ ]

(A) magnesite (B) galena

(C) gypsum (D) bauxite

19. Which one of the following is unsaturated hydrocarbon? [ ]

(A) C_2H_6 (B) C_3H_8

(C) C_3H_6 (D) CH_4

20. When sodium metal is dropped in ethanol ..... gas will be released. [ ]

(A) carbon dioxide (B) methane

(C) oxygen (D) hydrogen

II. Fill in the following blanks with suitable answers. $5 \times ½ = 2½$

21. The eye lens can change its focal length due to working of ..... muscles.

22. The relation between focal length and radius of curvature is given by .....

23. The lens which can form real and virtual images is .....

24. Three resistors of values 2Ω, 4Ω and 6Ω are connected in parallel. The resultant resistance is .....

25. The S.I. unit of magnetic field induction is .....

III. Match the following by writing the letter of the correct answer in the brackets, choosing from **Group B**. $5 \times ½ = 2½$

Group 'A'		*Group 'B'*
26. Plaster of Paris	[ ]	(A) $CaOCl_2$
27. Gypsum	[ ]	(B) $NaHCO_3$
28. Bleaching powder	[ ]	(C) $Na_2CO_3 \cdot 10H_2O$
29. Baking soda	[ ]	(D) $CaSO_4 \cdot 1/2\ H_2O$
30. Washing soda	[ ]	(E) $CaSO_4 \cdot 2H_2O$
		(F) $CuSO_4 \cdot 5H_2O$
		(G) $NaCl$