

Z.P.HIGH SCHOOL, \_\_\_\_\_

HALF YEARLY EXAM

10<sup>TH</sup> PHYSICAL SCIENCE

NAME \_\_\_\_\_

TIME: 2 hours

ROLL NO: \_\_\_\_\_

MAX MARKS: 35

**Section-I**

Part-A

Note: 1. Answer any five questions choosing at least two from each group. 2. Each question carries two marks

Group-A

1. Explain why dogs pant during hot summer days using the concept of evaporation?
2. Write the differences between evaporation and boiling?
3. Refractive index of glass relative to water is  $\frac{9}{8}$ . What is the refractive index of water relative to glass?
4. What do you mean by power of lens?

Group-B

5. An electron in an atom has the following set of four quantum numbers to which orbital it belongs to?
6. Why was the basis of classification of elements changed from the atomic mass to the atomic number?
7. By observing the pH scale, answer the following (i) Which of the body fluids have basic nature? (ii) Is lemon juice a strong acid or weak acid? (iii) Which of the above liquids have strong basic character? (iv) What is the pH of distilled water?
8. Which electronic shell is at a higher energy level, K or L? Why?

**Section-II**

Note: 1. Answer any four questions of the following. 2. Each question carries one mark.  $4 \times 1 = 4$

9. Why is respiration considered an exothermic reaction? Explain.
10. Imagine that spherical mirrors were not known to human beings, guess the consequences.
11. Why is the sky blue?
12. Why does pure acetic acid not turn blue litmus to red?
13. What is the value of the least distance of distinct vision?
14. Balance the following chemical equation.  $\text{NaOH} + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + \text{H}_2\text{O}$

**Section-III**

Note: 1. Answer any four questions choosing at least two from each group. 2. Each question carries four marks

Group-A

15. Suggest an experiment to prove that the rate of evaporation of a liquid depends on its surface area and the amount of vapour already present in the surrounding air?
16. Prisms are used in binoculars. Collect information on why prisms are used in binoculars.
17. Suresh can see objects clearly which are beyond 3m. So he consulted a doctor and the doctor suggested him some lens. a) What type of eye defect does he have? b) What kind of lens did the doctor suggest to overcome the eye defect? c) What is the focal length of the lens?
18. The graph given above shows that an ice cube of 1kg at  $-5^\circ\text{C}$  is heated till it vaporizes completely. a) What is the state of ice at C? b) What does the part DE in the graph represent? Explain? c) What is the value of *burning match* Q (heat energy) at E shown in the graph?

Group-B

19. What are the rules to be followed while filling electrons in atoms which contain more than one electron? How do you fill electrons in degenerate orbitals, explain?
20. What is an orbital? How is it different from Bohr's orbit?
21. Explain how elements are classified into s, p, d and f-block elements in the periodic table and give the advantage of this kind of classification?
22. Newlands proposed the law of octaves. Mendeleev suggested eight groups for elements in his table, how do you explain these observations in terms of modern concepts?

**Section-IV**

Note: 1. Answer any one question of the following questions. 2. Each question carries five marks.  $1 \times 5 = 5$

23. Draw suitable rays by which we can guess the position of the image formed by a concave mirror.
24. Draw the diagram of heating of calcium carbonate and testing the gas evolved with a burning matchstick.