CHEMISTRY

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Board – CBSE	Class – 10	Topic – Periodic Classification of Elements

1. What was the prediction of Mendeleev regarding the gaps in his periodic table?
2. How is valence of an element determined?
3. What will be the valence of an element having atomic number 16?
4. Why inert gases have zero valences?
5. What would be the valence of an atom containing 8 electrons in its outermost shell?
6. How does the electronegative character of elements vary along a period of the periodic table?
7. The present classification of elements is based on which fundamental property of elements?
8. Among first ten elements in the modern periodic table name the metals present.
9. Name two elements, other than Gallium, whose existence was predicted by Mendeleev.
10. State Modern Periodic law.
11. What name is given to the horizontal rows in a periodic table?
12. Why does silicon is classified as Metalloid?
13. Why could no fixed position be given to hydrogen in Mendeleev's Periodic table?
14. What are metalloids? Give two examples.
15. In group 1 of periodic table three elements X, Y and Z have atomic radii 133pm , 95pm and 65pm respectively giving a reason, arrange them in the increasing order their atomic number.
16. How and why does the atomic size vary as you go down the group?
17. Name three elements which behave as metalloids.
18. Alkali metals form positive ions why?
19. Answer these questions
    (a) Name the elements present in the third period and classify them into metals and non-metals.
    (b) On which side of the table do you find the metals?
    (c) On which side of the table do you find the non-metals?
20. Calcium is an element with Z = 20
    (a) Is it a metal or a non-metal?
    (b) Will its size be more or smaller than that of potassium?
    (c) Write the formula of its chloride
21. An element X belongs to 3rd period and group 2 of the periodic table. State
    (a) Number of valance electrons.

(b) Valency

(c) Metal or non-metal.

(d) Name of the element.

22. Element X has mass number 40 and contains 21 neutrons in its atom. To which group of the periodic table does it belong?
23. The elements X, Y and Z belong to group 2, 14 and 16 respectively of the periodic table
    (a) Which two elements will form covalent bond?
    (b) Which two elements will form an ionic bond?
24. State one reason for keeping fluorine and chlorine in the same group of the periodic table.
25. In the following set of elements, one element does not belong to the set. Select this element and explain why it does not belong?
    $^{27}A_{13}$ $^{24}B_{12}$ $^{23}C_{11}$ $^{22}D_{10}$
26. Element X and Y belong to groups 1 and 17 of the periodic table respectively. What will be the nature of the bond in the compound XY? Give two properties of XY.
27. The electronic configuration X is ;

K	L	M
2	8	6

    (i) What is the group number of element X in the periodic table?
    (ii) What is the period number of element X in the periodic table?
    (iii) What is the number of valence electrons in an atom of X ?
    (iv) What is the valency of X?
    (v) Is it a metal or a non-metal?
28. Where hydrogen should be placed in the periodic table? Give reason for your answer.
29. How does the valency of elements vary in going down a group of the periodic table?
30. How does the atomic size vary on going from to bottom in a group of the periodic table? Why does it vary this way?
31. What happens to the number of valence electrons in the atoms of elements as we go down in a group of the periodic table?
32. How does the tendency to lose electrons change as we go down in Group I of the periodic table?
33. How does the tendency to gain electrons change as we go down in Group 17 of the periodic table?
34. Explain why
    (i) All the elements of a group have similar chemical properties.

(ii) All the elements of a period have different chemical properties.

35. Nitrogen (Atomic number 7) & phosphorus (atomic number 15) belong to group 15 of the periodic table. Write the electronic configuration of these two elements. Which of these will be more electronegative? Why?
36. How does the properties of eka-aluminium element predicted by Mendeleev compare with the actual properties of gallium element? Explain your answer.
37. State one example of a Dobereiner's triad, showing in it that the atomic mass of middle element is half-way between those of the other two.
38. What were the limitations of Dobereiner's classification of elements?
39. What is Newlands' law of octaves? Explain with an example.
40. What were the limitations of Newlands' law of octaves?