

## Class-X

## Assignment

## Periodic Classification of Elements

1. An element 'X' belongs to 13 group & second period, write the formula of its oxide.
2. Name the chemist who gave "Triad rule" for classification of elements.
3. State Modern Periodic Law.
4. What is the name given to the horizontal rows in a periodic law?
5. State "Newlands law of Octaves" for classification of animals.
6. The Eka-aluminium predicted by Mendeleev was later replaced by which element.
7. On what basis the position resolved in modern periodic table?
8. Why was Doberemine's system of classification of elements into trails not found to be useful?
9. Name the element upto which Newlands law of Octave was applicable.
10. Name the fundamental property used by Mendeleev as the basis of classification.
11. Name the Russian scientist to whom the main credit for classifying element goes.
12. Why inert gases have zero valences?
13. Write is given to the vertical columns in periodic table.
14. What was the prediction of Mendeleev regarding the gaps in his periodic table?
15. How many elements were known when Mendeleev started his work on classification of elements?
16. How many groups & periods are there in the modern periodic table?
17. What is the name given to group of three similar elements by Dobereiner?
18. What will be the valency of an element having atomic no. 15?
19. What is the atomic radius of hydrogen atom?
20. Give reason why silicon is classified as metalloid.
21. How does valency vary in going down a group?
22. Metals are on which side of modern periodic table.
23. X & Y are two elements having similar properties which obey Newlands law of Octave. How many elements are there in between X & Y?
24. Name the group of element which was missing in Mendeleev's periodic table.
25. How is the valency of an element determined?
26. The present classification of elements is based on which fundamental property of elements?
27. Name two elements, other than Gallium, whose existence was predicted by Mendeleev.



28. How does the electronegative character of elements vary along a period of the periodic table?
29. What would be the valency of an atom containing 8 electrons in its outermost shell?
30. Among first ten elements in the modern periodic table name the metals present.
31. Name the scientist who proposed modern periodic law. On which fundamental property of elements it is based?
32. Write the points of differences between Mendeleev's periodic table & the modern periodic table.
33. State two limitations of Newland's law of Octaves.
34. Name:
  - (a) The element having two shells completely filled with electron.
  - (b) Any element having one electron in its outermost shell.
35. A, B & C are the elements of a Dobereiner's triad. If atomic mass of A is 7 & that of C is 39. What should be the atomic mass of B?
36. From the following group of elements given with their atomic number: B(5),  
Al(13), Na(11), Mg(12), Li(3)
  - (a) Which of these belong to the same group of periodic table?
  - (b) Which of these belong to the same period of periodic table?
37. Explain why Mendeleev was not able to assign a correct/fixed position to hydrogen in his periodic table?
38. In modern periodic table the isotopes of chlorine Cl-35 & Cl-37 having different atomic masses will be kept in different slots or they would be assigned same position on the basis of their chemical properties. Give reason in support of your answer.
39. Determine the valency of your four elements A, B, C & D whose atomic numbers are 12, 13, 16 & 17 respectively.
40. What are metalloids? Give two examples.
41. How does the tendency of the atom to lose electrons vary in a period? Explain why?
42. In group of periodic table three elements X, Y, & Z have atomic radii 133pm, 95pm & 65pm respectively giving a reason. Arrange them in the increasing order of their atomic no. in the group.
43. Nitrogen (atomic no. 7) & phosphorus (atomic no. 15) belong to group 15 of the periodic table:
  - (i) Write the electronic configuration of the two.
  - (ii) Predict whether they are metallic or non-metallic in nature.
44. How does the tendency of an atom to lose electrons vary down the group. Explain why?
45. State three merits of modern periodic table.



46. In what respects is the Mendeleev classification superior to the earlier classifications. Give three points.
47. What were the three limitations of Mendeleev's classification?
48. Atomic radii of the three group elements are given below:

Element (group 1)	Li	K	Na	Cs	Rb
Atomic radius (pm)	152	231	186	262	244

- (1) Arrange them in increasing order of their atomic size.
- (2) Name the elements having smallest & largest atoms.
- (3) How does the atomic size vary as you go down a group? Why?

49. A part of the periodic table is given below:

Group period	1	2	16	17	18
2	—	—	8	9	—
3	11	12	—	—	18
	Na	Mg			Au
4	19		34		
	K	—	Se	—	—

From the table answer the following questions:

- (i) Which element is most metallic?
- (ii) Which element is most non-metallic?
- (iii) Which element is inert gas?
- (iv) Which is smaller in size among O & Se?
- (v) Which is more chemically reactive among Na & Mg?

Write your answer with the reasoning.

50. Atomic radii of the elements of the period are as follows:

Periodic 11 elements	Be	B	O	N	C	Li
Atomic Radius	111	88	66	74	77	152

- (1) Arrange them in decreasing order of their atomic radii.
- (2) How does the atomic size vary on moving from left to right in a period? Explain why?
- (3) How the tendency to lose electrons will vary on moving from left to right in this period 11?

