

CHEMISTRY STUDY MATERIALS FOR CLASS 10

(MCQ based on: Periodic Classification of Elements)

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QUESTIONS WITH ANSWERS

27. Write the number of horizontal rows in the modern periodic table. What are these rows called?

Answer: There are seven horizontal rows in the modern periodic table. These rows are called periods.

28. What do you mean by valency?

Answer: Valency is no. of electron lost or gained or shared by atom of an element.

29. State one reason for placing Mg and Ca in the same group of the periodic table.

Answer: They have same number of valence electrons.

30. Give reason why noble gases are placed in separate group in modern periodic table.

Answer: They have completely filled outermost shell.

31. Why properties of elements are different belong to same period?

Answer: It is because they different in number of valence electrons which determines the properties of elements.

32. On moving from left to right in the second period when happens to the number of valence electrons?

Answer: No. of valence electrons increases from left to right in the second period

33. How does atomic size vary from left to right in a period?

Answer: Atomic size decreases from left to right in a period

34. List any two properties of the elements belonging to the first group of the modern periodic table.

Answer: First group elements are also known as alkali metals.

(a) These elements exhibit +1 valency.

(b) These are very reactive and not found freely in nature.

35. Which has larger atomic radius Ca (20) or K (19).

Answer: K (19) has larger atomic radius due to less effective nuclear charge.

36. Out of the three elements P, Q and R having atomic numbers 11, 17 and 19 respectively, which two elements will show similar properties and why?

Answer: P(11): 2,8,1 R(19): 2, 8, 8, 1 Q(17): 2, 8, 7

Elements P, R will show similar properties as they belong to the same group with valency 1 due to same number of valence electrons.

37. Write the atomic numbers of two elements 'X' and 'Y' having electronic configurations 2, 8, 2 and 2, 8, 6 respectively.

Answer: Atomic number of X = 2 + 8 + 2 = 12

Atomic number of Y = 2 + 8 + 6 = 16

38. The atomic numbers of three elements X, Y and Z are 3, 11 and 17 respectively. State giving reason which two elements will show similar chemical properties.

Answer: X and Y will show similar chemical properties as these have same valence electrons. 'X' 2, 8 and 'Y' 2, 8, 1

39 . Explain why the number of elements in third period is 8?

Answer: 3rd shell can have maximum eight electrons if it is valence shell. Therefore, number of elements are equal to 8 in third period

40. Out of Li and K, which have stronger metallic character and why?

Answer: K because it has larger size and more tendency to lose electron.

41. "Fluorine is more electronegative than Iodine." Give reason in support of this.

Answer: Fluorine has smaller size than iodine, has more tendency to attract shared pair of electron towards itself.

42. An element has atomic number 17 to which group and period closer it belongs.

Answer: Its electronic configuration is 2, 8, 7. It belongs to group 17 because it has 7 valence electrons. It belongs to 3rd period because it has 3 shells.

42. H, Li, Na, K placed in same group. Why?

Answer: It is because they have same number of valence electron i.e. 1

FILL IN THE BLANKS

- 1. The concept of grouping elements into triads was given by**
- 2. Mendeleev's basis for the Periodic Table is**
- 3. The basis for Modern Periodic Table is**
- 4. (a) Metallic character down the group.
(b) Atomic size along the period
(c) Electronegative character down the group.**
- 5. Isotopes belong to the same in the Periodic Table.**
- 6. Halogens belong to group of the Periodic Table.**
- 7. An element having electronic configuration (2, 8, 2) belongs to the group.**
- 8. Atoms of different elements with the same number of occupied shells are placed in the same**
- 9. Valency of elements and then as we move across the period while it remains the same down the group.**
- 10. Non-metals are located on the side of the Periodic Table.**

ANSWERS

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|------------------|-------------------------|---------------------|
| 1. Dobereiner | 2. atomic mass | 3. atomic no. |
| 4. (a) increases | 4. (b) decreases | 4.(c) decreases |
| 5. Position | 6. 17 | 7. 12 th |
| 8. Period | 9. increases, decreases | 10. right |
