

## Assignment on Periodic Classification of element

Q1. Why was it necessary to change the basis of classification from atomic mass to atomic number?

Q2. (a) What is a metalloid?

(b) Give the names of the metalloids in the Periodic Table along with their atomic number.

(c) In which groups of the Periodic Table are they located?

Q3. List three anomalies of Mendeleev's periodic table which were renamed by modern periodic law.

Q4. What were the limitations of Newlands' Law of Octaves?

Q5. Name:

(a) three elements that have a single electron in their outermost shells.

(b) two elements that have two electrons in their outermost shells.

(c) three elements with filled outermost shells.

Q6. In the Modern periodic table, calcium (atomic number 20) is surrounded by elements with atomic numbers 12, 19, 21 and 38. Which of these have physical and chemical properties resembling calcium?

Q7. Can the following groups of elements be classified as Dobereiner's triad?

(a) Na, Si, Cl

(b) Be, Mg, Ca

Atomic mass of Be 9; Na 23; Mg 24; Si 28; Cl 35; Ca 40.

Q8. How many groups and periods are there in the modern periodic table? How do the atomic size and metallic character of elements vary as we move:

(a) down a group and

(b) from left to right in a period.

Q9. Three elements 'X', 'Y' and 'Z' having atomic numbers 11, 7 and 6 respectively react with oxygen to form their oxides.

(a) Arrange these oxides in increasing order of their basic nature.

(b) Give reason for your answer.

Q10. Describe the basic character of the oxide of third period elements across the period.

Q11. Write the electronic configuration of argon.

Q12. State three reasons for placing chlorine and bromine in the same group of Periodic Table.

Q13. An element of group 15 has atomic number 15. Write the number of shells in its configuration, write its configuration and find its valency. Examine if this element will have metallic properties or not.

Q14. Halogens are placed in a separate group in the Modern Periodic Table.

(a) State their group number.

(b) How many valence electrons does each have?

(c) What is the type of ions formed by them?

(d) Name any two halogens.

Q16. Name three elements which have only one electron in their outermost shell. How will their atomic size and metallic property change down the group?

Q17. What is meant by atomic radius? Explain why it decreases across the period.

Q18. Arrange giving reason for elements in increasing order of their atomic size:  
g, N, P (Given that Mg and P belong to 2nd and 15th group respectively of 3rd period  
and N belongs to 15th group of 2nd period).

Q19. Consider two elements 'A' (Atomic number 17) and 'B' (Atomic number 19):

(i) Write the positions of these elements in the Modern Periodic Table giving  
justification.

(ii) Write the formula of the compound formed when 'A' combines with 'B'.

(iii) Draw the electron- dot structure of the compound and state the nature of the bond  
formed between the two elements.

Q20. The element Be, Mg, Ca are placed in the second group of the periodic table.  
Their atomic numbers are 4, 12, 20 respectively.

(a) Write the electronic configuration of these elements.

(b) Write the valency exhibited by them.

(c) Which of the three elements will be most reactive?

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