

AMIT AJMANI'S ACADEMY

D-16/82, SECTOR-7, ROHINI

PH: 9810476588, 9953371470

X CHEMISTRY CLASS TEST

M.M.-30

Name of Student: _____ Class & Sub: _____

Topic of Test: PERIODIC CLASSIFICATION OF ELEMENTS No. 1 Date: _____

1. Why atomic number is considered to be a more appropriate parameter than atomic mass for classification of elements in a Periodic Table? 1
2. What is the name given to eka-aluminium? 1
3. Define the Modern Periodic Law. 1
4. When you move from top to bottom in a group, what do you observe in case of the valence electrons? 1
5. When you move from top to bottom in a group, what do you observe in case of number of shells? 1
6. How does the valency vary in a group on going from top to bottom? 1
7. How & why atomic radius changes on moving left to right in a period? 2
8. Define the terms valency and valence electrons. 2
9. What were the limitations of Dobereiner's classification? 2
10. How does the atomic size vary as you do down in a group? Why? 2
11. How does the metallic character vary across a period and across a group? 2
12. Define the term metalloids with 2 examples. 2
13. What were the criteria used by Mendeleev in creating his Periodic Table? 2
14. Compare metals of group 1 with non-metals of group 17 with reference to their electronic configuration, nature of oxides, valency & atomic radius. 3
15. Name any two triads that Dobereiner had suggested along with their elements and their properties based on which they were placed in that triad? 3
16. Outline the merits and demerits of Mendeleev's Periodic Table. 4

ANSWERS

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Name of Student: _____ Class & Sub: _____

Topic of Test: PERIODIC CLASSIFICATION OF ELEMENTS No. 2 Date: _____

- Besides gallium (Ga), which other elements have been discovered that were left by Mandeleev in his Periodic Table? (Any two) 1
- Which group of elements was completely missing from Mendeleev's original Periodic Table? 1
- On moving from left to right in a period, what happens to valence electrons? 1
- Why did Mendeleev leave gaps in the Periodic Table? 1
- What is the valency of magnesium with atomic number 12 and sulphur with atomic number 16? 1
- How does the electronic configuration of an atom relate to its position in the Modern Periodic Table? 2
- How do you think the tendency to lose electrons changes with change in a group? How will this tendency change in a period? 2
- State the limitations of Newlands' Law of Octaves. 2
- An element X (2,8,2) combines separately with NO_3^- , SO_4^{2-} , and PO_4^{3-} radicals. Write the formulae of the three compounds so formed. To which group of the Periodic Table does the element X belong? Will it form covalent or ionic compound? Why? 3
- Given below are the melting points and atomic radii of three elements X, Y, and Z of the Periodic Table, having 'n' electrons in the outermost shell of their atoms.

	X	Y	Z
Melting Points (C)	180.5	97.5	63.5
Atomic Radii	1.33	1.54	1.94

State any 3 inferences drawn about the elements on the basis of above data. 3

- Give below are the electronic configurations of the atoms of some elements:
(a) A: 2, 8, 8. (b) B: 2, 8, 2. (c) C: 2, 8, 18, 8, 1. (d) D: 2, 8, 1. (e) E: 2, 8, 18, 7.

Now answer the following:

- Which is the terminating number of 3rd period?
- Which belongs to group 2?
- Which is a halogen?
- Which is the first element of 5th period?
- Which is an alkali metal?

3

- The table shows position of six elements A, B, C, D, E, and F in Periodic Table.

Groups/Period	1	2	3 to 12	13	14	15	16	17	18
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2	A					B			C
3		D			E				F

- (a) Which element will form only covalent compounds?
(b) Which element is a metal with valency 2?
(c) Which element is a non-metal with a valency 3?
(d) Out of D and E, which one has a bigger atomic radius and why?
(e) Write a common name for the family of elements C and F. 3
13. The position of three elements A, B, and C in the Periodic Table are:
- | | | | |
|--|----------|--|----------|
| | Group 16 | | Group 17 |
| | — | | — |
| | — | | A |
| | — | | — |
| | B | | C |
- (a) State whether A is a metal or a non-metal?
(b) State whether C is more reactive or less reactive than A.
(c) Will C be larger or smaller in size than B?
(d) Which type of ion, cation or anion, will be formed by element A?
(e) What will be the valency of B?
(f) Which among A and C will be more reactive? 3
14. On the basis of element of electronics structure, how will you select:
- (a) The first element in a period.
(b) The terminating member in a period.
(c) The chemically similar elements. 3
15. Nitrogen (Atomic number 7) and 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 and why? 2
16. Element X from a chloride with the formula XCl_2 which is a solid with a high melting point. X would most likely be in the same group of the Periodic Table as Na, Mg, Al. or Si? 1
17. Two elements X and Y have atomic numbers 12 and 16 respectively. Write the electronic configuration for these elements. To which period and group of the Modern Periodic Table do these two elements belong? What type of bond will be formed between them and why? 2
18. How is Helium an exception as per its place in the Periodic Table 1
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Name of Student: _____ Class & Sub: _____

Topic of Test: PERIODIC CLASSIFICATION OF ELEMENTS No. 3 Date: _____

1. Name three elements that have a single electron in their outermost shells. 2
2. Name two elements that have two electrons in their outermost shells. 1
3. Name three elements with filled outermost shells. 2
4. Name the elements which have:
 - (a) Two shells, both of which are completely filled with electrons.
 - (b) The electronic configuration 2, 8, 2.
 - (c) A total of three shells, with four electrons in its valence shell.
 - (d) A total of two shells, with three electrons in its valence shell.
 - (e) Twice as many electrons in its second shell as in its first shell. 5
5. Compare and contrast the arrangement of elements in Mendeleev's Periodic Table and the Modern Periodic Table. 2
6. How were the positions of isotopes of various elements decided in the Modern Periodic Table? Why? 2
7. Give two typical features of a group in terms of electronic configuration of an element. 2
8. How do you calculate valency of an element from its electronic configuration? 2
9. Give reasons as to why the atomic radii of elements increase in a group while moving from top to bottom? 1
10. Rewrite the following statements in a correct form after correction if necessary:
 - (a) Periods are the horizontal rows of elements.
 - (b) Groups have elements with consecutive atomic numbers.
 - (c) Elements in the same periods have equal valency. 3
11. What is a group in a Periodic Table? In what part of a group would you expect the elements to have the maximum metallic character and the largest atomic size? 2
12. Why are members of Group I called alkali metals? 1
13. What property do all elements in the same column of the Periodic Table as fluorine have in common? 2
14. What were the two major shortcomings of Mendeleev's Periodic Table? How have these been removed in the Modern Periodic Table? 3

ANSWERS