

QB365

Important Questions - Periodic Classification of Elements

10th Standard CBSE

Science

Reg.No. :

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Time : 01:00:00 Hrs

Total Marks : 50

Section - A

- 1) Upto which element, the Law of Octaves was found to be applicable 1
(a) Oxygen (b) Calcium (c) Cobalt (d) Potassium
- 2) According to Mendeleev's Periodic Law, the elements were arranged in the periodic table in the order of 1
(a) increasing atomic number (b) decreasing atomic number (c) increasing atomic masses
(d) decreasing atomic masses
- 3) Which of the following statements about the Modern Periodic Table is correct: 1
(a) It has 18 horizontal rows known as Periods (b) It has 7 vertical columns known as Periods
(c) It has 18 vertical columns known as Groups (d) It has 7 horizontal rows known as Groups.
- 4) The elements A,B,C,D and E have atomic number 9,11,17,12 and 13 respectively. Which pair of elements belong to the same group? 1
(a) A and B (b) B and D (c) A and C (d) D and E
- 5) An element which is an essential constituent of all organic compounds belong to 1
(a) group 1 (b) group 14 (c) group 15 (d) group 16
- 6) Which of the following elements does not lose an electron easily? 1
(a) Na (b) F (c) Mg (d) Al
- 7) Arrange the following elements in the order of their decreasing metallic character: Na, Si, Cl, Mg, Al 1
(a) Cl>Si>Al>Mg>Na (b) Na>Mg>Al>Si>Cl (c) Na>Al>Mg>Cl>Si (d) Al>Na>Si>Ca>Mg
- 8) Which of the following elements will form an acidic oxide? 1
(a) An element with atomic number 7 (b) An element with atomic number 3
(c) An element with atomic number 12 (d) An element with atomic number 19
- 9) The element with atomic number 14 is hard and forms acidic oxide and a covalent halide. To which of the following categories does the element belong? 1
(a) Metal (b) Metalloid (c) Non-metal (d) Left-hand side element
- 10) Which of the following set of elements is written in order of their increasing metallic character? 1
(a) Be Mg Ca (b) Na Li K (c) Mg Al Si (d) C O N

Section - B

- 11) What were the criteria used by Mendeleev in creating his Periodic Table? 2

- 12) Name: 2
- (a) Three elements that have a single electron in their outermost shells
 - (b) Two elements that two electrons in their outermost shells.
 - (c) Three elements with filled outermost shells.
- 13) (a) What property do all elements in the same column of the Periodic Table as boron have in common? 2
- (b) What property do all elements in the same column of the Periodic Table as fluorine have in common?
- 14) The electronic configuration of an element 'X' is 2,8,8,2. To which (a) period and (b) group of the modern periodic table does 'X' belong? State its valency. Justify your answer in each case. 2
- 15) What physical and chemical properties of elements were used by Mendeleev in creating his periodic table? 2
- List two observations which posed a challenge to Mendeleev's Periodic Law.
- 16) State Mendeleev's periodic law. Write two achievements of Mendeleev's periodic table. 2
- 17) How does the metallic character of elements change along a period of the periodic table from the left to the right and why? 2
- 18) How does the valency of elements vary 2
- (a) in going down a group, and
 - (b) in going from left to right in a period of the periodic table?
- 19) An element has atomic number 13. 2
- (a) It belongs to group 13 and period number to which this element belongs?
 - (b) Is this element a metal or a non-metal? Justify your answer.
- 20) State the Modern Periodic Law for Classification of elements. How many (a) groups and (b) periods are there in the Modern Periodic Table? 2

Section - C

- 21) Atomic number of a few elements are given below 10, 20, 7, 14 5
- (a) Identify the elements.
 - (b) Identify the Group number of these elements in the Periodic Table.
 - (c) Identify the Periods of these elements in the Periodic Table.
 - (d) What would be the electronic configuration for each of these elements?
 - (e) Determine the valency of these elements.
- 22) (a) Electropositive nature of the element(s) increases down the group and decreases across the period 5
- (b) Electronegativity of the element decreases down the group and increases across the period
- (c) Atomic size increases down the group and decreases across a period (left to right)
- (d) Metallic character increases down the group and decreases across a period.
- On the basis of the above trends of the Periodic Table, answer the following about the elements with atomic numbers 3 to 9.
- (a) Name the most electropositive element among them.
 - (b) name the most electronegative element.
 - (c) Name the element with smallest atomic size.
 - (d) Name the element which shows maximum valency.

23) Explain the trends in the modern periodic Table of various properties like valency, atomic size, metallic and non-metallic properties of the atoms of elements.

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24) (a) Why do we classify elements?

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(b) What were the two criteria used by Mendeleev in creating his Periodic Table?

(c) Why did Mendeleev leave some gaps in his Periodic Table?

(d) In Mendeleev's Periodic Table, why was there no mention of Noble gases like Helium, Neon and Argon?

(e) Would you place the two isotopes of chlorine, Cl-35 and Cl-37 in different slots because of their different atomic masses or in the same slot because their chemical properties are the same? Justify your answer.

