CHEMISTRY

BOOKS - KUMAR PRAKASHAN

PERIODIC CLASSIFICATION OF ELEMENTS

Questions And Answers

1. How did the study of large number of elements become easy?

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2. On what basis, scientists classified the different elements in early attempts ?

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3. What is meant by Dobereiner's triads? Explain.

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4. Some groups of three elements are given below:

Group A element	Atomic mass	Group B element	Atomic mass	Group C element	Atomic mass
N	14.0	Ca	40.1	Cl	35.5
P	31.0	Sr	87.6	Br	79.9
As	74.9	Ba	137.3	I	126.9

Which of these groups is not an example of Dobereiner's triad ? Explain it.

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5. Explain the Newlands' law of octaves.

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6. Did Dobereiner's triads also exist in the columns of Newlands' octaves ? Compare and find out.

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7. What were the limitations of Dobereiner's classification ?

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8. What were the limitations of Newlands' law of octaves ?

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9. Explain the pattern of Mendeleev's periodic table.

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10. Explain the contribution of Mendeleev in the classification of elements.

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11. Explain the irregularities (anomalies) of Mendeleev's periodic table.

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12. Explain the achievemente ente) of Mendeleev's periodic table.

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13. Write the limitations of Mendeleev's classification.

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14. Use Mendeleev's periodic table to predict the formulae for the oxides of the following elements : K, C, A, Si, Ba

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15. Besides gallium, which other elements have since been discovered that were left by Mendeleev in his periodic table? (any two)

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16. What were the criteria used by Mendeleev in creating his periodic table ?

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17. Why do you think the noble gases are placed in a separate group ?

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18. Write the general information of the modern periodic table.

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19. Explain the outline of the modern periodic table.

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20. What are meant by periodic properties? Give examples.

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21. What is valency? Explain the trends of valency for elements in a period and in a group.

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22. What is meant by atomic size ? Explain the trends in atomic size of elements in a period and in a group.

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23. Write the positions of metallic, nonmetallic and metalloid elements in the modern periodic table.

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24. Explain the trends of the metallic character in a period and a group.

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25. Explain the trends of the non-metallic character in a period and a group.

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26. What are metalloids or semi-metallic elements ? Give examples.

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27. How could the modern periodic table remove various anomalies of Mendeleev's periodic table?

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28. Name two elements you would expect to show chemical reactions similar to magnesium. What is the basis for your choice ?

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29. Name :

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

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30. two elements that have two electrons in their outermost shells

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31. three elements with filled outermost shells.

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32. Lithium, sodium, potassium are all metals that react with water to liberate hydrogen gas. Is there any similarity in the atoms of these elements ?

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33. Helium is an unreactive gas and neon is a gas of extremely low reactivity. What, if anything, do their atoms have in common?

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Textual Exercise

1. In the modern periodic table, which are the metals among the first ten elements ?

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2. By considering their position in the periodic table, which one of the following elements would you expect to have maximum metallic characteristics ? Ga Ge As Se Be

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3. Which of the following statements is not a correct statement about the trends when going from left to right across the periods of periodic table:

A. The elements become less metallic in nature.

B. The number of valence electrons increases.

C. The atoms lose their electrons more easily.

D. a total of two shells, with three electrons in its valence shell ?

Answer:

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4. Element X forms 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 ....

A. Na

B. Mg

C. Al

D.

Answer:

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5. Which element has

(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 ?

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6. What property do all elements in the same column of the periodic table as boron have in common?

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7. What property do all elements in the same column of the periodic table as fluorine have in common?

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8. An atom has electronic configuration 2, 8, 7.

(a) What is the atomic number of this element ?

(b) To which of the following elements would it be chemically similar ?

(Atomic numbers are given in parentheses.) N (7) F (9) P (15) Ar (18)

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9. The position of three elements A, B and C in the periodic table are shown below:

Group 16	Group 17
–	–
–	A
–	–
B	C

(a) State whether A is a metal or non metal. 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?

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10. 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? Why?

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11. How does the electronic configuration of an atom relate to its position in the modern periodic table ?

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12. 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 ?

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13. Compare and contrast the arrangement of elements in Mendeleev's periodic table and the moderm periodic table.

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Additional Questions And Answer Answer The Following Questions In Short

1. From the following elements :

$_{20}Ca, {}_{3}Li, {}_{11}Na, {}_{10}Ne$

(a) Select the element which has two shells, both of which are completely filled with electrons.

(b) Select two elements of the same group.

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2. Answer the following questions [for an element having atomic number 17] :

(a) Name the element.

(b) In which period will you find this element ?

(c) To which group of the periodic table does this element belong?

(d) State the electronic configuration of the element.

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3. An element X (atomic number 17) reacts with an element Y (atomic number 20) to form a divalent halide.

(a) What is the position of elements X and Y in the periodic table ?

(b) What will be the nature of oxide of element Y? Identify the nature of bonding in the compound formed.

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4. Two elements M and N belong to the same period of the modern periodic table and are in group I and group II respectively. Compare their following properties :

Atomic size

(b) Metallic character

(c) Valency of oxides

(d) Molecular formula of their chlorides

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5. A part of the periodic table has been shown below:

Period → / Group ↓	1	2	13	14	15	16	17	18
1	A	C					E	G
2	B			D			F	
3								

Answer the following questions on the basis

of position of elements in the above table :

(a) Which element is a noble gas? Give reason.

(b) Which element is most electronegative ? Give reason.

(c) Write the electronic configuration of B and E.

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6. The positions of elements A, B, C, D, E, F, G and in their respective groups are as follows:

Group	1	2	13	14	15	16	17	18
Element	A	B	C	D	E	F	G	H

Answer the following questions:

(a) (a) Which elements have the largest and smallest atomic size?

(b) Which elements have the valency 3 and 0 respectively?

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7. Consider the part of periodic table given below and answer the following questions:

Group → / Period ↓	1	2	13	14	15	16	17	18
I	a							
II	b	e				g	h	j
III	c		f				i	k
IV	d							l

(i) State the most reactive metal.

(ii) How many shells does element d have ?

(iii) Identify the element having valency 2.

(iv) Write the number of electrons in the valence shell of j.

(v) Out of h and i, which element is more non-metallic in nature ?

(vi) Out of e and h, which element possess large atomic size?

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8.

Group → / Period ↓	1	2	3 - 12	13	14	15	16	17	18
2	A					B			C
3				D	E				F

Using the above table, answer the following questions:

(i) Which element will form only covalent compounds ?

(ii) Which element is a metal with valency 3 ?

(iii) Which element is a non-metal with valency 3 ?

(iv) Out of D and E, which one has a bigger atomic size?

(v) Write common name for the family of elements, C and E

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Additional Questions And Answer Distinguish Between The Following

1. Elements of a group and Elements of a period

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2. Metallic element and Non-metallic elements

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3. Dobereiner's triads could not arrange all the elements known at that time.

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4. Newlands' law of octaves could not classify all the elements known at that time.

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5. No fixed position can be assigned to hydrogen in the periodic table.

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6. The atomic size decreases in a period on moving from left to right.

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7. On moving down in a group, the atomic radii of elements increases gradually.

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Objective Questions And Answers Answer The Following Questions In One Word

1. How many elements are known till date?

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2. How many amongst the known elements are naturally occurring?

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3. In which two types the elements were classified in early attempts ?

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4. By which name the law proposed by Dobereiner is known?

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5. How many elements were classified by Dobereiner's triads ?

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6. Cl, X and I are the elements of Dobereiner's triad, then what would be the element X ?

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7. Name the elements Newlands started and ended the classification of elements.

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8. With what Newlands' law of octaves was compared ?

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9. Which element possess similar property with boron in Newlands' law of octaves ?

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10. Name two elements which were placed in the same slot in Newlands' octaves.

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11. How many elements were known when Mendeleev started the classification of elements ?

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12. Name two elements which formed compound on which Mendeleev had concentrated.

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13. What are the vertical columns and the horizontal rows called in Mendeleev's periodic table ?

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14. Which Sanskrit prefix was used by Mendeleev in the naming of elements which were not discovered at that time?

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15. Which element was not placed in Mendeleev's periodic table properly?

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16. Which scientist proposed the periodic law for the modern periodic table ?

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17. Write the number of elements present in first, third and fourth period in the modern periodic table.

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18. State the number of elements present in sixth period of the modern periodic table.

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19. How many groups are present in the modern periodic table ?

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20. How many elements exist as gases in the modern periodic table ?

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21. By what names the elements of group I are known in the modern periodic table ?

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22. By which formula the maximum number of electrons that can be accommodated in a shell determines ?

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23. Write the valency of an element having atomic number 13.

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24. Name the elements in the modern periodic table having lowest and highest atomic radii.

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25. State the radius of a hydrogen atom.

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Objective Questions And Answers

1. Define :

Isotopes

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2. Define:

Periodic properties

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3. Define :

Valency

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4. Define :

Atomic radius

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5. Define :

Metalloids (Semi-metal)

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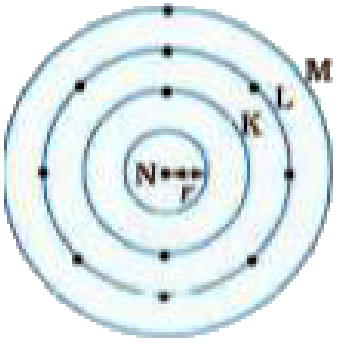
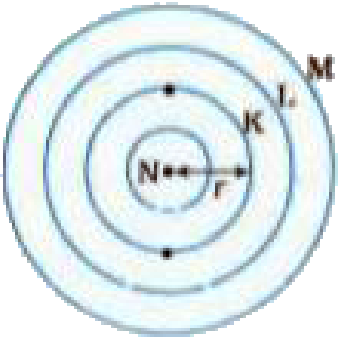
6. Which one of the following depict the correct representation of atomic radius of an atom?



(i)



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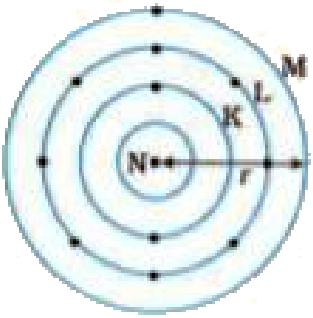

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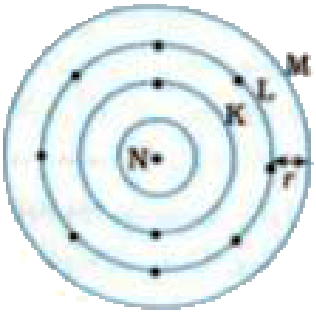

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Objective Questions And Answers Fill In The Blanks

1. Lithium, sodium and ..... are the members of Dobereiner's triad.

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2. Newlands law of octaves is applicable for ..... elements.

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3. According to Newlands, ... elements occur in nature.

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4. Mendeleev named scandium as .....

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5. The element known as eka-silicon is. .....

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6. If the valency of an element is 2, then it lies in group .....

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7. The electronic configuration of an element is 2, 8, 3, then it is an element of ..... period.

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8. In the modern periodic table, noble gases are placed in group .....

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9. Modern periodic table consists of ..... Periods and ..... groups.

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10. Position of ..... in the periodic table is controversial.

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11. On moving down in any group, the metallic character of the elements .....

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12. Oxides of ..... elements are basic in nature.

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Objective Questions And Answers State Whether The Following Statements Are True Or False

1. At present, naturally occurring elements are 98.

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2. The atomic masses of elements form a Dobereiner's triad are 14 u, 31 u and 74.9 u

respectively.

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3. Calcium, strontium and barium form a Dobereiner's triad.

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4. According to the Newlands law of octaves, every eighth element had properties similar to that of the first element.

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5. Sodium is the eighth element after lithium.

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6. Oxygen is the eighth element after sulphur.

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7. Phosphorus is the eighth element after nitrogen.

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8. Dobereiner's triads are observed in Newlands' octaves.

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9. Mendeleev's periodic law was based on atomic number of elements.

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10. Molecular formula of oxide of barium is Bao.

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11. Mendeleev named gallium for eka-silicon.

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12. An element having atomic number 3.5 can be placed between Be and B.

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13. There are three valence electrons present in the elements of group I.

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14. Electrons are filled in K, L and M shells in the elements of the third period.

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15. Each period starts with the filling of electrons in a new shell.

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Objective Questions And Answers Match The Following Properly

1.

Column I	Column II
1. Dobereiner	a. Law of octaves
2. Newlands	b. Periodic law
3. Mendeleev	c. Modern periodic table
4. Henry Moseley	d. Law of triads

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2.

Column I	Column II
1. Li, Na, K	a. Metalloids
2. S, P, Cl	b. Noble gases
3. B, Si, Ge	c. Non-metallic elements
4. He, Ne, Ar	d. Metallic elements

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3. Draw the graph of Atomic radii $\rightarrow$ Atomic numbers for the alkali metal elements.

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Objective Questions And Answers Draw The Following Graphs

1. Draw the graph of Atomic radii $\rightarrow$ Atomic numbers for the elements of second period.

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Objective Questions And Answers Choose The Correct Option From Those Given Below Each Question

1. For which of the following element, Mendeleev didn't left gap in his periodic table ?

A. Gallium

B. Beryllium

C. Germanium

D. Scandium

Answer: B

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2. Newlands' law of octaves was found to be applicable upto .....

A. nickel

B. cobalt

C. phosphorus

D. calcium

Answer: A::C

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3. According to Mendeleev's periodic law, the elements were arranged in the periodic table in the order of ....

A. increasing atomic number.

B. decreasing atomic number.

C. increasing atomic masses.

D. decreasing atomic masses.

Answer: A::C

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4. The elements Si, B and Ge are .....

A. metallic elements

B. non-metals

C. metalloids

D. metal, non-metal and metalloid respectively

Answer: A::B::C::D

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5. In Mendeleev's periodic table, gaps were left for the elements to be discovered later. Which of the following elements found a place in the periodic table later?

A. Be

B. Ge

C. Si

D. Se

Answer:

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6. The three imaginary elements X, Y and Z represent a Dobereiner's triad. If the atomic mass of element X is 14 u and that of element Y is 46 u, then the atomic mass of element Z will be .....

A. 28

B. 60

C. 78

D. 72

Answer:

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7. The atomic numbers of four elements P, Q, R and S are 6, 8, 14 and 16 respectively. Out of these, the element known as metalloid is .....

A. P

B. Q

C. R

D. S

Answer:

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8. Which of the following statements is correct with regard to the classification of elements ?

A. Elements in modern periodic table are arranged on the basis of increasing atomic masses.

B. Elements in modern periodic table are arranged on the basis of decreasing atomic numbers.

C. In modern periodic table, the element nickel of lower atomic mass is kept before the element cobalt of higher atomic mass.

D. In modern periodic table, the isotopes of chlorine having different atomic masses are kept in the same group.

Answer: A::B::C::D

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9. Which of the following statements about the modern periodic table is correct?

A. It has 18 horizontal rows known as periods.

B. It has 8 vertical columns known as periods.

C. It has 18 vertical columns known as groups.

D. It has 7 horizontal rows known as groups.

Answer: A::C

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10. An element X forms an oxide X_2O_3. In which group of Mendeleev's periodic table is this element placed ?

A. Group II

B. Group III

C. Group V

D. Group VIII

Answer:

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11. Who proposed the 'Modern periodic law for the modern periodic table ?

A. Dobereiner

B. Newlands

C. Henry Moseley

D. Mendeleev

Answer:

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12. Which fundamental particle forms the real basis for the modern classification of elements ?

A. Proton

B. Electron

C. Neutron

D. Nucleon

Answer:

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13. Which of the following is not correct about the trends when going from left to right across the periods of the periodic table ?

A. The elements become more non-metallic in nature.

B. The number of valence electrons increases.

C. The atoms lose their electrons easily.

D. The oxides become more acidic.

Answer: A::C

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14. The electronic configuration of the atom of an element X is 2, 8, 4. In modern periodic table, the element X is placed in.....

A. Group 2

B. Group 14

C. Group 4

D. Group 8

Answer: A::D

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15. The atomic number of an element is 20. In modern periodic table, this element is placed in .....

A. 2nd period

B. 3rd period

C. 1st period

D. 4th period

Answer: D

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16. The elements A, B, C, D and E have atomic numbers of 2, 3, 7, 10 and 18 respectively. The elements which belong to the same period of the periodic table are .....

A. A, B, C

B. B, C, D

C. A, D, E

D. B, D, E

Answer: B::C::D

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17. The elements A, B, C, D and E have atomic numbers 9, 11, 17, 12 and 13 respectively. The pair of elements which belong to the same group of the periodic table is.

A. A and B

B. B and D

C. D and E

D. A and C

Answer: A::C::D

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18. Which of the following element would lose an electron easily?

A. Mg

B. Na

C. K

D. Ca

Answer:

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19. Which of the following element will gain an electron easily?

A. Mg

B. F

C. Mg

D. Al

Answer:

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20. Where would you place the element with electronic configuration 2, 8 in the modern periodic table ?

A. Group 8

B. Group 2

C. Group 18

D. Group 10

Answer: A

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21. An element which is an essential constituent of all organic compounds belong to .....

A. Group 4

B. Group 10

C. Group 16

D. Group 14

Answer: A::D

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22. Which of the following is the valence shell for the elements of second period of the modern periodic table ?

A. M-shell

B. K-shell

C. N-shell

D. L-shell

Answer:

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23. The element which has the maximum number of valence electrons is.....

A. ${}_{15}P$

B. ${}_{11}Na$

C. ${}_{14}Si$

D. ${}_{13}Al$

Answer: A

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24. The correct increasing order of the atomic radii of the elements oxygen, fluorine and nitrogen is .....

A. O, F, N

B. N, F, O

C. O, N, F

D. F, O, N

Answer:

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25. Which one of the following does not increase while moving down the group of the periodic table ?

A. Atomic radius

B. Metallic character

C. Valence electrons

D. Basicity of oxides

Answer: A::C

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Objective Questions And Answers B Choose More Than One Correct Options From Those Given Below Each Question

1. Mention the drawbacks of Mendeleev's periodic table.

A. Position of hydrogen

B. Position of isotopes

C. Arrangement of Noble gases

D. Arrangement of more than one elements in the same slot.

Answer: A::B::C::D

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2. Which of the following increase while moving down the group 17 elements ?

A. Atomic radius

B. Valence electrons

C. Metallic character

D. Acidity of oxides

Answer: A::C

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3. Which of the following statements are correct for modern periodic table ?

A. New elements can be easily arranged.

B. Predictions of properties of the elements become easy.

C. The elements have been divided into metals and non-metals by the thick zig-zag line running diagonally across the periodic table.

D. Atomic volume of elements decreases onmoving down in the group.

Answer: A::B::C

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4. The electronic configuration of the atom of an element is 2, 8, 7. In this reference, which of the following statements are correct?

A. This element belong to group 17.

B. This element has a tendency to gain one electron.

C. This element belongs to fourth period.

D. The element fluorine is placed above this

Answer: A::B::D

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5. Assertion A: In the modern periodic table, metallic character of elements increases on moving down the group.

Reason R: In the modern periodic table, the elements are arranged in order of their increasing atomic masses.

A. Assertion A and reason R are true, and reason R is the correct explanation of assertion A.

B. Assertion A and reason R are true, but reason R is not the correct explanation of assertion A.

C. Assertion A is corret but reason R is false.

D. Assertion A is false but reason R is true.

Answer: C

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6. Assertion A : Newlands arranged the then known elements in order of musical notes.

Reason R: According to Newlands, proton is

responsible for the arrangement of elements in the periodic table.

A. Assertion A and reason R are true, and reason R is the correct explanation of assertion A.

B. Assertion A and reason R are true, but reason R is not the correct explanation of assertion A.

C. Assertion A is corret but reason R is false.

D. Assertion A is false but reason R is true.

Answer: C

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7. Assertion A: Chemical reactivity of the element of group 18 is very less.

Reason R: Their outermost shell is completely filled with electrons.

A. Assertion A and reason R are true, and reason R is the correct explanation of assertion A.

B. Assertion A and reason R are true, but reason R is not the correct explanation of assertion A.

C. Assertion A is corret but reason R is false.

D. Assertion A is false but reason R is true.

Answer: A

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Objective Questions And Answers C

1. Assertion A: The position of hydrogen in modern periodic table is a matter of controversy.

Reason R: The properties of hydrogen resembles with the properties of alkali metals and halogens.

A. Assertion A and reason R are true, and reason R is the correct explanation of assertion A.

B. Assertion A and reason R are true, but reason R is not the correct explanation of assertion A.

C. Assertion A is corret but reason R is false.

D. Assertion A is false but reason R is true.

Answer: A

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Value Based Questions With Answers

1. Six elements of periodic table A, B, C, D, E and F have atomic numbers of 2, 12, 20, 18, 4 and 10 respectively (where A, B, C, D, E and F are not the chemical symbols of these elements). Based on this information, answer the following questions :

Which of these elements belong to the same groups of the periodic table? Why?

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2. Six elements of periodic table A, B, C, D, E and F have atomic numbers of 2, 12, 20, 18, 4 and 10 respectively (where A, B, C, D, E and F are not the chemical symbols of these elements). Based on this information, answer the following questions :

Which of these elements belong to the same periods of the periodic table? Why?

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3. Six elements of periodic table A, B, C, D, E and F have atomic numbers of 2, 12, 20, 18, 4 and 10 respectively (where A, B, C, D, E and F are not the chemical symbols of these elements). Based on this information, answer the following questions :

Which of these elements are (i) metals and (ii) non-metals ?

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4. Six elements of periodic table A, B, C, D, E and F have atomic numbers of 2, 12, 20, 18, 4 and 10 respectively (where A, B, C, D, E and F are not the chemical symbols of these elements). Based on this information, answer the following questions :

Which of these elements are chemically (i) reactive and (ii) unreactive ?

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5. Six elements of periodic table A, B, C, D, E and F have atomic numbers of 2, 12, 20, 18, 4 and 10 respectively (where A, B, C, D, E and F are not the chemical symbols of these elements). Based on this information, answer the following questions :

What values are indicated in a student in answering the above questions?

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6. In his periodic table, Mendeleev arranged all the then known 63 elements in the order of increasing atomic masses in horizontal rows but in such a way that elements having similar properties came directly under one another in the same vertical column. In the classification of the then known elements, Mendeleev was guided mainly by two factors. In order to make sure that the elements having similar properties fall in the same vertical column, Mendeleev left some gaps in his periodic table. Though leaving gaps in the periodic table was

considered to be a drawback of his classification of elements at that time but Mendeleev was firm on his decision. Answer the following questions :

What are the horizontal rows of Mendeleev's periodic table known as ? How many horizontal rows of elements were there in Mendeleev's periodic table ?

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7. In his periodic table, Mendeleev arranged all the then known 63 elements in the order of increasing atomic masses in horizontal rows but in such a way that elements having similar properties came directly under one another in the same vertical column. In the classification of the then known elements, Mendeleev was guided mainly by two factors. In order to make sure that the elements having similar properties fall in the same vertical column, Mendeleev left some gaps in his periodic table. Though leaving gaps in the periodic table was

considered to be a drawback of his classification of elements at that time but Mendeleev was firm on his decision. Answer the following questions :

What are the vertical columns of Mendeleev's periodic table known as ? How many vertical columns were there in Mendeleev's periodic table ?

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8. In his periodic table, Mendeleev arranged all the then known 63 elements in the order of increasing atomic masses in horizontal rows but in such a way that elements having similar properties came directly under one another in the same vertical column. In the classification of the then known elements, Mendeleev was guided mainly by two factors. In order to make sure that the elements having similar properties fall in the same vertical column, Mendeleev left some gaps in his periodic table. Though leaving gaps in the periodic table was

considered to be a drawback of his classification of elements at that time but Mendeleev was firm on his decision. Answer the following questions :

What were the similar properties used by Mendeleev to classify the then known elements into vertical columns ?

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9. In his periodic table, Mendeleev arranged all the then known 63 elements in the order of

increasing atomic masses in horizontal rows but in such a way that elements having similar properties came directly under one another in the same vertical column. In the classification of the then known elements, Mendeleev was guided mainly by two factors. In order to make sure that the elements having similar properties fall in the same vertical column, Mendeleev left some gaps in his periodic table. Though leaving gaps in the periodic table was considered to be a drawback of his classification of elements at that time but Mendeleev was firm on his decision. Answer

the following questions :

What were the two main guiding factors for Mendeleev in the classification of the then known elements ?

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10. In his periodic table, Mendeleev arranged all the then known 63 elements in the order of increasing atomic masses in horizontal rows but in such a way that elements having similar properties came directly under one another in

the same vertical column. In the classification of the then known elements, Mendeleev was guided mainly by two factors. In order to make sure that the elements having similar properties fall in the same vertical column, Mendeleev left some gaps in his periodic table. Though leaving gaps in the periodic table was considered to be a drawback of his classification of elements at that time but Mendeleev was firm on his decision. Answer the following questions :

For what purpose were some gaps left by Mendeleev in his periodic table? Does the

modern periodic table also have the gaps left by Mendeleev?

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11. In his periodic table, Mendeleev arranged all the then known 63 elements in the order of increasing atomic masses in horizontal rows but in such a way that elements having similar properties came directly under one another in the same vertical column. In the classification of the then known elements, Mendeleev was

guided mainly by two factors. In order to make sure that the elements having similar properties fall in the same vertical column, Mendeleev left some gaps in his periodic table. Though leaving gaps in the periodic table was considered to be a drawback of his classification of elements at that time but Mendeleev was firm on his decision. Answer the following questions :

What values were displayed by Mendeleev in presenting his classification of elements ?

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12. There are three elements X, Y and Z having atomic numbers of 6, 16 and 19 respectively. Based on this information, Het has been asked to answer the following questions:

In which group of the periodic table would you expect to find (i) element x (ii) element Y and (iii) element z?

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13. There are three elements X, Y and Z having atomic numbers of 6, 16 and 19 respectively. Based on this information, Het has been asked to answer the following questions:

Which two elements will form ionic bonds? Why?

View Text Solution

14. There are three elements X, Y and Z having atomic numbers of 6, 16 and 19 respectively.

Based on this information, Het has been asked to answer the following questions:

What will be the formula of ionic compound formed ?

View Text Solution

15. There are three elements X, Y and Z having atomic numbers of 6, 16 and 19 respectively. Based on this information, Het has been asked to answer the following questions:

Which two elements will form covalent bonds? Why?

View Text Solution

16. There are three elements X, Y and Z having atomic numbers of 6, 16 and 19 respectively. Based on this information, Het has been asked to answer the following questions:

What will be the formula of covalent compound formed ?

View Text Solution

17. There are three elements X, Y and Z having atomic numbers of 6, 16 and 19 respectively. Based on this information, Het has been asked to answer the following questions:

What values are displayed by Het in answering the above questions?

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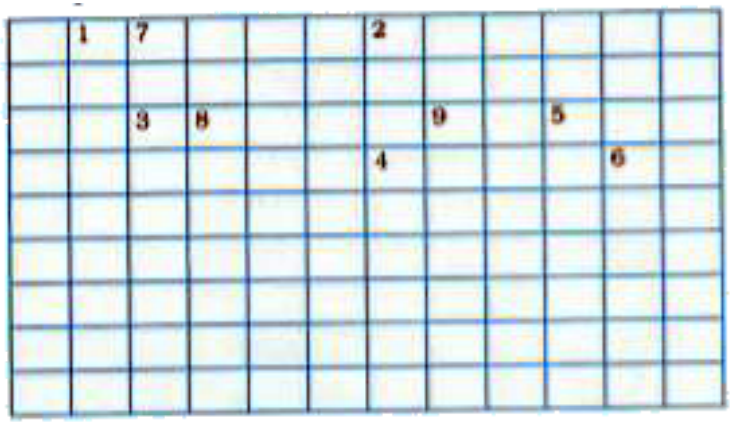
Practical Skill Based Questions With Answers

1. Complete the following cross-word puzzle :



Across :

(1) An element with atomic number 12

(3) Metal used in making cans and member of group 14.

A lustrous non-metal which has 7 electrons in its outermost shell.

Down:

(2) Highly reactive and soft metal which imparts yellow colour when subjected to flame and is kept in kerosene.

(5) The first element of second period.

(6) An element which is used in making fluorescent bulbs and is second member of group 18 in the modern periodic table.

(7) A radioactive element which is the last member of halogen family.

Metal which is an important constituent of steel and forms rust when exposed to moist air.

(9) The first metalloid in modern periodic table

whose fibres are used in making bullet- proof vests.

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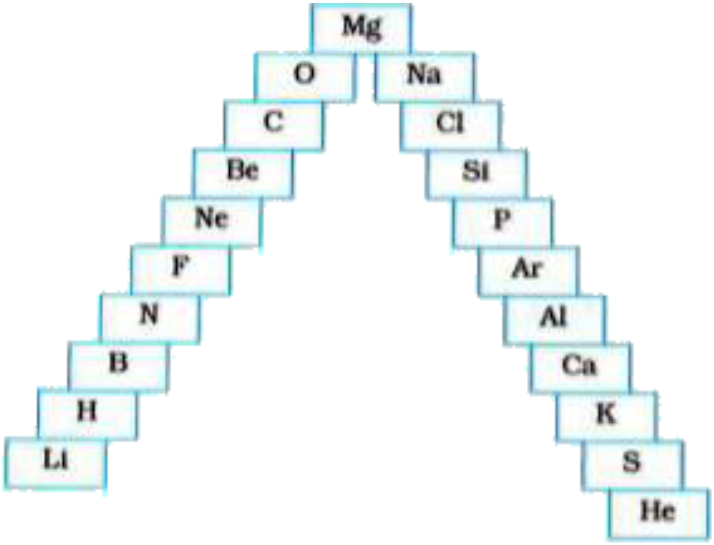
2. In this ladder, symbols of elements are jumbled up.

(a) Rearrange these symbols of elements in the increasing order of their atomic numbers in the periodic table.

(b) Arrange them in the order of their group

alos.



View Text Solution

Acitivity 5 2

1. Would you place them in different slots because their atomic masses are different ?

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2. Would you place them in the same position because their chemical properties are the same?

View Text Solution

Acitivity 5 3

1. How were the positions of cobalt and nickel resolved in the modern periodic table ?

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2. How were the positions of isotopes of various elements decided in the modern periodic table ?

View Text Solution

3. Is it possible to have an element with atomic number 1.5 placed between hydrogen and helium ?

View Text Solution

4. Where do you think should hydrogen be placed in the modern periodic table ?

View Text Solution

Acitivity 5 4

1. Look at the group 1 of the modern periodic table and name the elements present in it. ?

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Acitivity 5 5

1. If you look at the modern periodic table, you will find that the elemenets Li, Be, B, C, N, O, F F and Ne are present in the second period. Write down their electronic configurations.

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2. Do these elements also contain the same number of valence electrons ?

View Text Solution

3. Do they contain the same number of shells?

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Acitivity 5 6

1. How do you calculate the valency of an element from its electronic configuration ?

View Text Solution

2. What is the valency of magnesium with atomic number 12 and sulphur with atomic number 16?

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3. Find the valency of the first twenty elements.

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4. How does the valency vary in a period on going from left to right?

View Text Solution

5. How does the valency vary in going down a group?

View Text Solution

Acitivity 5 7

1. Atomic radii of the elements of the second period are given below:

Period II elements: B Be O N Li C

Atomic radius (pm): 88 111 66 74 152 77

Arrange them in decreasing order of their atomic radii.

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2. Are the elements now arranged in the pattern of a period in the periodic table ?

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3. Which elements have the largest and the smallest atoms?

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4. How does the atomic radius change as you go from left to right in a period ?

View Text Solution

Acitivity 5 8

1. Study the variation in the atomic radii of first group elements given below and arrange

them in an increasing order.

Group I elements : Na Li Rb Cs K Atomic radius (pm): 186 152 244 262 231

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2. Name the elements which have the smallest and the largest atoms.

View Text Solution

3. How does the atomic size vary as you go down a group ?

View Text Solution

Acitivity 5 9

1. Examine elements of the third period and classify them as metals and non-metals.

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2. On which side of the periodic table do you find the metals ?

View Text Solution

3. On which side of the periodic table do you find the non-metals ?

View Text Solution

Acitivity 5 10

1. How do you think the tendency to lose electrons changes in a group ?

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2. How will this tendency change in a period ?

View Text Solution

Acitivity 5 11

1. How would the tendency to gain electrons change as you go from left to right across a period ?

View Text Solution

2. How would the tendency to gain electrons change as you go down a group ?

View Text Solution