

Time : 1 Hour 30 Minute

STD 10 Science
Chapter Based Test

Total Marks : 50

SECTION A

* Select and write one most appropriate option out of the four options given [7]
for each of the questions

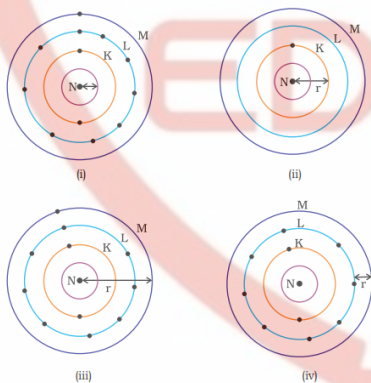
1. The metal which is hard and has high melting point and used in filaments of electrical bulbs is:

- (A) Ni (B) Fe (C) Pt (D) W

2. An element 'A' belongs to the third period and group 16 of the Periodic Table. Find out the valency of A.

- (A) Valency = 6 (B) Valency = 2 (C) Valency = 1 (D) Valency = 3

3. Which one of the following depict the correct representation of atomic radius (r) of an atom?



- (A) (i) and (ii). (B) (ii) and (iii). (C) (iii) and (iv). (D) (i) and (iv).

4. Which of the given elements A, B, C, D and E with atomic number 2, 3, 7, 10 and 30 respectively belong to the same period?

- a. A, B, C.
b. B, C, D.
c. A, D, E.
d. B, D, E.

5. Three elements B, Si and Ge are:

- a. Metals.
b. Non-metals.
c. Metalloids.
d. Metal, non-metal and metalloid respectively.

6. An element which is an essential constituent of all organic compounds belongs to:

- a. Group 1.
b. Group 14.

- c. Group 15.
- d. Group 16.

7. The element which forms a basis oxide has the atomic number of:
- a. 18.
 - b. 17.
 - c. 14.
 - d. 19.

* **Assertion - Reasoning based questions.**

[3]

8. For two statements are given-one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:
- a. Both A and R are true, and R is correct explanation of the assertion.
 - b. Both A and R are true, but R is not the correct explanation of the assertion.
 - c. A is true, but R is false.
 - d. A is false, but R is true.

Assertion: Number of valence electrons decreases down the group.

Reason: Number of valence electrons increases when we move left to right in a period.

9. For two statements are given-one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:
- a. Both A and R are true, and R is correct explanation of the assertion.
 - b. Both A and R are true, but R is not the correct explanation of the assertion.
 - c. A is true, but R is false.
 - d. A is false, but R is true.

Assertion: Atomic size of As is more than that of P.

Reason: Atomic size decreases along a period.

10. For two statements are given-one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:
- a. Both A and R are true, and R is correct explanation of the assertion.
 - b. Both A and R are true, but R is not the correct explanation of the assertion.
 - c. A is true, but R is false.
 - d. A is false, but R is true.

Assertion: In Dobereiner's triad, the three elements present, have same gaps of atomic numbers.

Reason: Elements in a triad have similar properties.

* **Fill in the blank with correct answer.[1 Mark each]**

[2]

11. Group 1 elements are called _____.
12. On moving from left to right in a period in the periodic table, the size of the atom _____.

* **Answer the questions.[1 Mark each]**

[2]

13. On what basis are they arranged now?
14. A metal M belongs to 13th group in the modern periodic table. Write the valency of the metal.

SECTION B

* Answer the following question. :

[10]

1. What is the main characteristic of the last elements in the periods of the periodic table? What is the general name of such elements?

2. The position of three elements A, B and C in the Periodic Table are shown below-

Group 16

Group 17

-

-

-

A

-

-

B

C

- State whether A is a metal or non-metal.
 - State whether C is more reactive or less reactive than A.
 - Will C be larger or smaller in size than B?
 - Which type of ion, cation or anion, will be formed by element A?
3. Consider the following elements:
Na, Ca, Al, K, Mg, Li.
- Which of these elements belong to the same period of the periodic table?
 - Which of these elements belong to the same group of the periodic table?
4. What were the two criteria used by Mendeleev to classify the elements in his periodic table?
5. Which group of elements could be placed in Mendeleev's periodic table later on, without disturbing the original order? Give reason.

SECTION C

* Answer short answer questions. [3 Mark each]

[12]

1. Na, Mg and Al are the elements of the same period of Modern Periodic Table having one, two and three valence electrons respectively. Which of these elements,

- Has the largest atomic radius.
- Is least reactive? Justify your answer stating reason for each case.

2. Two elements X and Y belong to group 1 and 2 respectively in the same period of periodic table. Compare them with respect to:

- The number of valence electrons in their atoms.
- Their valencies.
- Metallic character.
- The sizes of their atoms.
- The formulae of their oxides.
- The formulae of their chlorides.

3. The atomic masses of three elements X, Y and Z having similar chemical properties are 7, 23 and 39 respectively.

- Calculate the average atomic mass of elements X and Z.
- How does the average atomic mass of elements X and Z compare with the atomic mass of element Y?
- Which law of classification of elements is illustrated by this example?
- What could the elements X, Y and Z be?

- e. Give another example of a set of elements which can be classified according to this law.
4. How could the modern periodic law remove various anomalies of Mendeleev's periodic table? Explain with examples.

SECTION D

*** Long answer questions [5 Mark each]**

[10]

1.
 - a. Why do we classify elements?
 - 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.
2. The following diagram shows a part of the periodic table in which the elements are arranged according to their atomic numbers.

(The letters given here are not the chemical symbols of the elements):

a	b		c	d	e	f	g	h
3	4		5	6	7	8	9	10
i	j		k	l	m	n	o	p
11	12		13	14	15	16	17	18

- i. Which element has a bigger atom, a or f?
- ii. Which element has a higher valency, k or o?
- iii. Which element is more metallic, i or k?
- iv. Which element is more non-metallic, d or g?
- v. Select a letter which represents a metal of valency 2.
- vi. Select a letter which represents a non-metal of valency 2.

SECTION E

*** case - based/data -based questions**

[4]

1. The picture shows the modern periodic table.

X →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Y ↓	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	1	2																2
	3	4																10
	11	12																18
	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
	55	56		72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
	87	88		104	105	106	107	108	109	110	111	112	113	114	115	116	117	118
	Lanthanides		57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	
	Actinides		89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	

3. What do the columns (X) and rows (Y) stand for in the periodic table?

X =

Y =

4. Which of these columns in the periodic table contains chemically inert elements?

- A. X1
- B. X2
- C. X13
- D. X18

5. What is the order of arrangement of elements in the periodic table?

- A. Increase in valency
- B. Decrease in atomic mass
- C. Increase in atomic number
- D. Decrease in the number of atomic shells

6. What does the position of an element in the periodic table indicate?

Circle 'Yes' or 'No' for the correct response.

Does the position of an element in the periodic table show this?	Yes or No
How reactive the element is?	Yes/No
What is the boiling point of the element?	Yes/No
What is the number of atomic shells in the element?	Yes/No

EDUCATION



॥ ज्ञानं एव श्रमस्य पुंजः ॥