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SUMMATIVE ASSESMENT - I 2026-2027
CHEMISTRY

Class : IX

Score : 40
Time : 1 ½ Hours

Instructions

- First 15 minutes are cool off time. Read the questions carefully and plan the answers during this time.
- Write the answers according to the instructions.
- Consider the score while writing the answers.
- Answer only one choice for questions having choice A and B.

Answer all the questions from 1 to 4. Each question carries 1 score.

(4 x 1 = 4)

1. Find the relationship and fill in the blank.

(1)

Dmitri Ivanovich Mendeleev : Atomic Mass

Henry Moseley : _____

- A) Atomic mass B) Atomic number
 C) Atomic radius D) Atomic size

2. Assertion (A) : An atom is electrically neutral.

Reason (R) : The total number of positive charges and negative charges in an atom is different.

(1)

- a) A is correct but R is not correct.
 b) Both A and R are correct, and R is the correct explanation of A.
 c) Both A and R are not correct.
 d) A is not correct but R is correct.

3. Some statements are given below. Select those related to Niels Bohr atom model. (1)

- (i) Electrons revolve around the nucleus of an atom in definite orbits.
 (ii) As the distance from the nucleus increases, the energy of the orbits decreases.
 (iii) As long as the electrons revolve in a particular orbit their energy does not change.
 a) Statements (i) and (ii).
 b) Statement (i) only.
 c) Statements (i) and (iii).
 d) Statement (ii) only.

4. Match the following.

(1)

A	B
(X) Metalloid	(p) Vanadium
(Y) Transition element	(q) Uranium
(Z) Actinoids	(r) Sodium
	(s) Silicon

10. Select the correct option.

	V	X	Y	Z
a)	r	p	s	
b)	q	r	s	
c)	s	p	q	
d)	p	s	r	

Two questions from 5 to 11 have choice. Each question carries 2 scores.

(7x 2 =14)

5. Rutherford is the scientist who proposed the planetary model of atom.

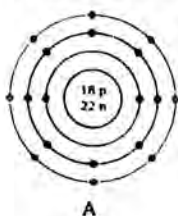
a) Write the name of the centre of the atom.

(1)

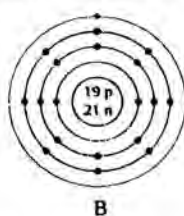
b) What is the charge of this centre?

(1)

6. The orbit electron configurations of some atoms are given.



A



B



C

a) What is the peculiarity of the mass numbers of these atoms?

(1)

b) By what name are these atoms generally known?

(1)

7. Element R belongs to the second period and sixteenth group of the periodic table.

a) What is the atomic number of this element?

(1)

b) Write the electron configuration of the noble gas belonging to its period.

(1)

8. Some observations of Rutherford's gold foil experiment are given below.

Write down the conclusions arrived at from these observations.

(2)

i) Most of the alpha particles passed through the gold foil without any deviation.

ii) Very few alpha particles deflected back at an angle of 180° .

9. (A) Write any two merits of the modern periodic table.

(2)

OR

(B) Write any two drawbacks of Mendeleev's periodic table.

(2)

10. Some of the characteristics of cathode rays are given.

How were the following proved?

(2)

a) Cathode rays have a negative charge.

b) Cathode rays have mass.

11. (A) The electron configurations of some elements are given below.

(Symbols are not real).

P – 2,8

Q – 2,7

R – 2,1

Which of these elements has the largest atomic size? Write the reason.

(2)

OR

(B) The atomic numbers of some elements are given below. (Symbols are not real).

X – 11

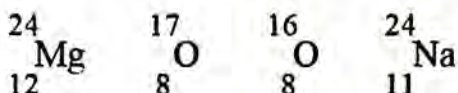
Y – 14

Z – 17

- Arrange these elements in the decreasing order of their atomic size. (1)
- What is the change in atomic size as we move from top to bottom in a group? Write the reason. (1)

Two questions from 12 to 17 have choice. Each question carries 3 scores. (6 x 3 = 18)

12. (A) Symbols of few elements are given below:



- Identify and write down the pair of isotopes. (1)
- Write the reason for choosing this pair. (1)
- Which isotope is used to detect leaks in industrial pipelines? (1)

OR

(B) Protium, deuterium and tritium are isotopes of hydrogen.

- In isotopes, which particles differ in number? (1)
- Write the mass number of tritium. (1)
- Which isotope of hydrogen is present in heavy water? (1)

13. A part of the periodic table is given where atomic numbers of A and G are shown.

(Symbols are not real).

${}_5\text{A}$	B	C
E	F	${}_{15}\text{G}$

- In which group does element E belong? (1)
 - Write the electron configuration of the element belonging to the first group in the period of element G. (1)
 - What is the atomic number of the halogen atom in the period containing element C? (1)
14. (A) The atomic number of an atom is 18 and its mass number is 40.
- What is its nuclear charge? (1)
 - Illustrate its orbit electron configuration. (2)

OR

(B) An atom has 15 protons and 16 neutrons.

- Illustrate the orbit electron configuration. (2)
- Which is the shell with the lowest energy in this atom? (1)

15. The mass number and number of neutrons of some elements are given.

(Symbols are not real).

Element	Number of Neutrons	Mass Number
K	20	39
L	8	16
M	18	35
N	10	20

a) Which of these elements belong to the same period? (1)

b) What is the atomic number of element K? (1)

c) Which is the noble gas among these? (1)

16. Some elements and their electron configurations are given. (Symbols are not real).

X - 2, 8, 3

Y - 2, 8

Z - 2, 6

a) Which of these elements has the highest stability? Write the reason. (2)

b) How many more electrons are needed for Z to get stability? (1)

17. The M shell of an atom contains 3 electrons.

a) What is the number of electrons in the shell with the highest energy? (1)

b) Write the name and symbol of this element. (1)

c) What is the total number of elements present in its period? (1)

Question 18 has choice. It carries 4 scores.

(1 x 4 = 4)

18. (A) An element belonging to the 3rd group has electrons distributed in 4 shells.

a) The filling of the last electron takes place in the (1)

(outermost shell / innermost shell / penultimate shell / shell inner to the penultimate shell)

b) To which family of element does this element belong? (1)

c) Write any two characteristics of the elements belonging to this family. (2)

OR

(B) a) Which are the groups included in main group elements? (1)

b) To which group do alkaline earth metals belong? (1)

c) Write any two characteristics of main group elements. (2)