DELHI PUBLIC SCHOOL NEWTOWN
SESSION 2024-25
MONDAY TEST

CLASS: IX **FULL MARKS: 40**
SUBJECT: CHEMISTRY **DATE: 11/11/2024**

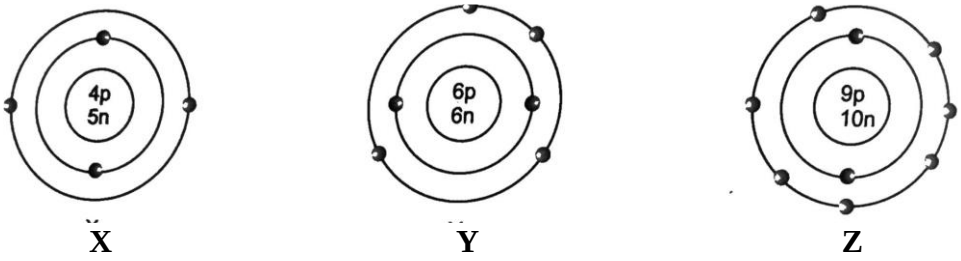
General Instructions:

- **The paper consists of three printed pages.**
- **Read the questions very carefully.**
- **Answers should be to the point.**
- **Question numbers should be copied carefully while answering the questions.**

SECTIONA
(*Attempt all questions*)

Question: 1
Choose the correct answers from the options given below: **[8]**

a) The details about three atoms X, Y and Z are given below.



X **Y** **Z**

Which of the above elements will form an ionic bond?
(A) X and Y
(B) X and Z
(C) Y and Z
(D) Two atoms of Z

b) The percentage composition of potassium in potassium dichromate is: [K=39, Cr=52, O=16]
(A) 2.65
(B) 38.1
(C) 56.6
(D) 26.53

c) Assertion: Smaller the size of an atom, greater is the electronegativity
Reason: Electronegativity refers to the tendency of an atom to share electrons
(A) Both A and R are true, and R is the correct explanation of A
(B) Both A and R are true, and R is not the correct explanation of A
(C) A is false but R is true
(D) A is true but R is false

d) The atomic number of an element 'A' is 19. How many electrons are there in A^+?
(A) 20
(B) 19
(C) 18
(D) 17

e) The number of electrons, protons and neutrons in oxide ion are respectively:
[Oxygen: Z=8, A=16]
(A) 8, 8, 8
(B) 8, 10, 8
(C) 10, 8, 8
(D) 8, 8, 10

f) The group of elements which are kept at the bottom of the periodic table are known as:
(A) Noble gases
(B) Typical elements
(C) Halogens
(D) Inner transition elements

g) The one which is composed of all the three kinds of bond is:
(A) Sodium chloride
(B) Carbon tetrachloride
(C) Ammonium chloride
(D) Aluminium chloride

h) Which is the correct order of electron affinity among the following options?
(A) Li < Na < K < Rb < Cs
(B) Li < K < Na < Rb < Cs
(C) Li > Na > K > Cs > Rb
(D) Li > Na > K > Rb > Cs

Question: 2

a) Give reasons for the following: [5]
(i) Alkali metals are good reducing agents.
(ii) Dobereiner's Law of triads was discarded.
(iii) Group 2 elements are called alkaline earth metals.
(iv) Molten sodium chloride is a good conductor of electricity but not carbon tetrachloride.
(v) $_{19}K^{39}$ and $_{19}K^{40}$ have similar chemical properties.

b) Arrange the elements as per the instructions : [5]
(i) Na, Li, K (increasing atomic size)
(ii) Ar, He, Ne (decreasing number of shells)
(iii) Li, K, Na (increasing metallic character)
(iv) Water, Hydrogen fluoride, Ammonia (decreasing number of covalent bonds)
(v) Nitric oxide, Nitrous oxide, Nitrogen dioxide (increasing molecular weight)

Question: 3

Draw the orbit diagram structure of the following: [2]
a) Magnesium chloride
b) Methane

SECTIONB
(*Attempt all questions*)

Question: 4

a) Atomic number of an element 'Z' is 17. [2]
(i) State the position of 'Z' in the modern periodic table.
(ii) State the formula of the compound formed between 'Z' and another element 'X' which has three valence electrons.

b) Draw the electron dot structure of the following compounds: [3]

(i) Ammonium ion

(ii) A molecule of 'X' having 7 electrons in its atom.

(iii) A molecule formed by elements 'A' and 'B' having atomic number 8 and 20 respectively

Question: 5

a) Rohan has taken two compounds namely calcium nitrate, ammonium sulphate to find out the best fertilizer. He calculated the percentage of nitrogen in each. According to him which one will he apply to the plants? [N=14, Ca=40, O=16] [2]

b) A compound has the formula H_2X where 'X' is a non metal. State the following:

(i) The formula of the compound formed between 'X' and another element 'W' having atomic number 13.

(ii) The type of bonding present in H_2X.

c) Define ionization potential. [1]

Question: 6

A scientist designed a table which is given below. In the table, H does not represent hydrogen. Some elements are given in their own symbol and position in the periodic table while others are shown with a letter. Study the table carefully and answer the following questions: [5]

IA	IIA	IIIA	IV	VA	VIA	VIIA	O
1	2	13	14	15	16	17	18
Li		D			O	J	Ne
A	Mg	E	Si		H	K	
B	C		F	G			L

(i) Identify the element from period 2 with the smallest atomic size.

(ii) Give the molecular formula of the compound formed between A and H.

(iii) How many valence electrons are present in G?

(iv) Draw the electron dot structure of the molecule formed between C and K.

(v) Identify the noble gas of the fourth period.

Question: 7

a) State giving reasons if:

(i) Neon has zero electron affinity.

(ii) Covalent compounds generally exist as gases, liquids or soft solids.

b) An element 'X' belongs to group 2 and another element 'Y' belongs to group 15 of the periodic table.

(i) What is the valency of 'X'?

(ii) State the number of valence electrons in 'Y'.

(iii) Write the formula of the compound formed between 'X' and 'Y'.