SET A

E 906 - Ch

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FIRST TERM EVALUATION 2024-25

CHEMISTRY

Std: IX

Score : 40
Time : 1 ½Hours

Instructions

- First 15 minutes is given as cool off time. This time is to be spent for reading and understanding the questions.
- Answer the questions according to the directions.
- Score and time are to be considered while answering.

Answer any 4 questions from 1 to 5. Each carries 1 score. **(4 x 1 = 4)**

1. Which isotope of carbon is used for determining the age of fossils? (1)
   (Carbon -12, Carbon -13, Carbon -14, None of these)
2. The scientist who discovered neutron is ———— (1)
3. The number of electron pairs shared in the formation of oxygen molecule is.....
   (The atomic number of oxygen is 8) (1)
4. Which gas gives proton during discharge tube experiments using perforated cathode? (1)
5. Fill up suitably. (1)

   Mendeleev's Periodic table : Atomic mass
   Modern Periodic table : ----------

Answer any 4 questions from 6 to 10. Each carries 2 scores. **(4 x 2 = 8)**

6. Metalloids are included in main group elements.
   a) What are metalloids? (1)
   b) Write two examples for metalloids. (1)
7. An atom of element X has 16 electrons.(symbol is not real)
   a) Write the electron configuration of this element. (1)
   b) Find out the group and period of the element. (1)
8. Transition elements show similarity in properties in groups as well as in periods. Explain the reason. (2)
9. The symbols of some elements are given.

   $^{40}_{20}Ca$ $^{31}_{15}P$ $^{40}_{18}Ar$ $^{32}_{15}P$

   a) Select a pair of isobars from this group. (1)
   b) Write the reason for selecting this pair. (1)

10. Select the characteristics of ionic compounds from the following statements. (2)

a) They exist as crystals in solid state.

b) They usually have low melting points and boiling points.

c) They usually have high melting points and boiling points.

d) They conduct electricity in solid state.

Answer any 4 questions from 11 to 15. Each carries 3 scores. **(4 x 3 = 12)**

11. Some of the observations of Rutherford's gold foil experiment are given. Write the assumptions arrived at from these. (3)

i) Most of the alpha particles passed through the gold foil undeflected.

ii) Some of the alpha particles were deflected by a small angle.

iii) A very few number of alpha particles bounced back.

12. Consider the formation of the compound sodium chloride.

[Hint: Atomic number Na = 11, Cl =17]

a) Which atom donates electron in this reaction? (1)

b) Draw the electron dot diagram of the formation of sodium chloride. (2)

13. The isotope of an element is used to make heavy water.

a) Write the name of this isotope. (1)

b) Write the names of other two isotopes of this element. (1)

c) Which isotope among these has mass number 3? (1)

14. Select the statements not suitable for main group elements. (3)

a) Show similarities in properties in periods

b) They include metals, non metals and metalloids.

c) They represent elements belonging to different physical States.

d) Show similarities in properties in groups.

e) Elements of groups 3 to 12 are included.

f) Lanthanoids and actinoids are included.

15. The outermost M shell of an element contains 7 electrons. It has18 neutrons in its nucleus.

a) Write the complete electron configuration of this element. (1)

b) Write its atomic number and mass number. (1)

c) How many positive charges are there in the nucleus of this atom? (1)

Answer any 4 questions from 16 to 20. Each carries 4 scores. **(4 x 4 = 16)**

16. As the atomic number changes the size of atom also changes.

a) Which are the factors affecting the size of an atom? (2)

b) How does the size of atom vary in groups and periods? (2)

17 Analyse the table and answer the following questions.(Symbols are not real)

Element	Atomic number
A	6
B	14
C	17
D	19

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

b) Which element among A and B has smaller atom? (1)

c) Find the group of element C. (1)

d) To which family of elements does C belong? (1)

18 An element $^{27}_{13}Al$ is given.

a) Write the number of protons and neutrons in this element. (1)

b) Write the electron configuration of this element . (1)

c) Draw the orbit electron configuration of this element. (2)

19. Match the following. (4)

Observations	Inferences
a) Cathode rays cast shadows of opaque object placed in its path	i) Cathode rays have negative charge
b) The small paddle wheel placed in the path of the cathode rays rotates.	ii) Particles in the cathode rays are present in all substances
c) In an electric field cathode rays are attracted towards the positive plate	iii) Cathode rays travel in straight lines
d) All gases give cathode rays with same behaviour.	iv) Particles in the cathode rays have mass.

20. Select the suitable names of family from the bracket for the statements given below.

[transition elements , actinoids, noble gases, alkali metals]

a) Last electron fills in the penultimate shell (1)

b) Usually do not take part in chemical reactions. (1)

c) They are group 1 elements. (1)

d) Arranged at the bottom of the periodic table. (1)