

COMPREHENSIVE REVISION TEST (UNIT TEST) SERIES - 2023

TEST No. 4

CHEMISTRY - UNIT 1

[Chapters: 1, 2]

Time : 45mts

Total Score : 20

MPUT

Std. X

Instructions :

- Answer the questions based on instructions.
- Answer the questions according to the score and time.

Answer any TWO questions from 1 to 3. Each question carries 1 score. $(2 \times 1 = 2)$

1. If the atomic mass of Nitrogen is 14, which one does not agree with 1 mole atom of Nitrogen?

- a) 14g nitrogen b) 1 GAM nitrogen
c) 1 GMM nitrogen d) 6.022×10^{23} atoms of nitrogen

2. Identify the first pair and then complete the second pair.

Charles' Law: $\frac{V}{T} = \text{a constant}$; Boyle's Law :

3. 'X' is an element of 17th group. The number of 'p' electrons in the valence shell of the atom of 'X' is

Answer any TWO questions from 4 to 6. Each question carries 2 scores. $(2 \times 2 = 4)$

4. a) Write down the sub shell electron configuration of the element ${}_Z Q$.

(The symbol 'Q' is not real)

b) Mention the group number and block of the element in the Periodic Table.

5. Certain data regarding various gases kept under the same conditions of temperature and pressure are given below.

Gas	Volume (L)	No. of molecules
Nitrogen	10L	x
Oxygen	5L
Ammonia	10L
Carbon dioxide	2x

a) Complete the table.

b) Which Gas Law is applicable here?

6. A certain quantity of gas, containing 'n' molecules is now kept in 1L jar. It is then transferred to a 5L jar, kept at the same conditions. What will be the new volume of the gas in that jar? How many molecules will be there in the new jar?

7. Go through the following statements carefully.

From among these statements, identify the ones, applicable to s-block elements, p-block elements and d-block elements.

- Noble gas elements belong to this block.
- A few elements of this block are metalloids.
- Most of them are artificially prepared elements.
- Number of valence electrons in the atoms of these elements represents the group number.
- Electrons are filled in the antepenultimate shell.
- Elements show similarities in properties not only in groups, but also in periods.

Answer any TWO questions from 7 to 9. Each question carries 3 scores. (2 x 3 = 6)

8. The element 'Y' in group 17 has 3 shells in its atom. ('Y' is an imaginary symbol of the element). If so,

- Write down the sub shell electron configuration of the element.
- How many valence electrons are there in its atom? What is its common valency?
- Write down the formula of the compound, formed when 'Y' combines with Aluminium ($Z = 13$).

9. a) Write down the statement of Charles' Law.

b) Tyres of vehicles are inflated only to a low pressure in summer seasons. Why?

Answer any TWO questions from 10 to 12. Each question carries 4 scores. (2 x 4 = 8)

10. 44.8l. of a gaseous compound, kept at STP weighs 32g.

- How many moles of gas is mentioned here?
- Find the number of molecules present in the given volume of gas.
- What is the molecular mass of the given compound?

11. A portion of the modern Periodic Table is shown here, by including the symbols of a few elements (The symbols shown are not the real ones). Examine it.

1																	18	
	2												13	14	15	16	17	
	Q													U		V	W	Y
		3	4	5	6	7	8	9	10	11	12							
	P				R								T					X

Based on the table, answer the following questions.

- Identify two elements which may exhibit variable oxidation states.
- Which one is the most reactive non metal?
- Which is the element with the lowest ionisation energy?
- Pick out two representative elements, having valency two each.

12. Iron can form two types of chloride compounds, FeCl_2 and FeCl_3 .

- Name those two compounds.
- Write down the symbol of the ion of Iron present in FeCl_2 and in FeCl_3 .
- Write the sub shell electron configuration of the ion of iron in FeCl_3 .