

CHEMISTRY 2023

TIME: 3 Hours

(85 Marks)

SECTION 'A' (Multiple Choice Questions)(17)

1. Choose the correct answer for each from the given options:

1) Number of atoms in 60gm carbon will be:

- * 3.0×10^{23} * 3.01×10^{24} ✓
* 6.02×10^{23} * 6.02×10^{24}

2) Line spectra is used for the identification of a/an:

- * Proton * Electron * Element * Molecule ✓

3) According to Hund's rule, the electronic configuration of carbon (C = 6) is:

- * $1s^2 2s^2 2p_x^1 2p_y^1$ ✓ * $1s^2 2s^2 2p_x^1 2p_y^1 2p_z^1$
* $1s^2 2s^2 p_x^2$ * $1s^2 2s^1 2p_x^1 2p_y^2$

4) The bond order in N_2 molecule is:

- * 0 * 1 * 2 * 3 ✓

5) This molecule has zero dipole moment:

- * NH_3 * HCl * H_2O * CCl_4 ✓

6) Under similar conditions CH_4 gas diffuses faster than SO_2 gas:

- * 1.5 times * 2 times ✓ * 4 times * 16 times

7) It is an example of crystalline solid:

- * Glass * Rubber * Table Salt ✓ * Plastic

8) This liquid has the highest surface tension:

- * Water * Mercury ✓ * Ethanol * Gasoline

9) When a catalyst is added to a system equilibrium K_c will be:

- * decreased * increased * unchanged ✓ * zero

10) In equilibrium system $PCl_5 \rightleftharpoons PCl_3 + Cl_2$, the relationship between K_p & K_c is:

- * $K_p > K_c$ * $K_p > K_c$ * $K_p = K_c$ ✓ * $K_p \neq K_c$

11) This oxide is amphoteric in nature:

- * K_2O * CO_2 * CaO * Al_2O_3 ✓

12) In pure water, universal indicator acquires this colour:

- * Red * Green ✓ * Blue * Pink

13) Rate constant of a chemical reaction is affected by:

- * concentration of reactant * temperature ✓
* concentration of product * reaction time

14) The sum of mole fractions of all the components of a solution is equal to:

- * 1 ✓ * 10 * 100 * zero

15) Size of particles in a colloidal solution is:

- * less than 1 nm * between 1 nm and 1000 nm ✓
* above 1000 nm * zero

16) In a thermochemical process, work is zero if this is kept constant:

- * Temperature * Volume ✓ * Pressure * Mass

17) The outer body of dry cell is made up of

- * Copper * Zinc ✓ * Lead * Iron

SECTION 'B' (Short Answer Questions) (20)