**B-SECTION – III**
**Science (CBZ)**
**CHEMISTRY**

41. IUPAC name of glycerol is :
(A) 1, 2 - ethane diol
(B) 1, 2, 3 - propane triol
(C) 1, 1, 2 - trihydroxy propane
(D) 1, 2 - dihydroxy ethane

42. (I) $(CH_3)_3C^{\ominus}$
(II) $(CH_3)_2CH^{\ominus}$
(III) $CH_3 - CH_2^{\ominus}$
(IV) $C_6H_5CH_2^{\ominus}$
The order of decreasing stability of carboanions is :
(A) I > II > III > IV
(B) IV > III > II > I
(C) IV > I > II > III
(D) I > II > IV > III

43. The position of double bond in alkenes can be located by :
(A) hydrogenation
(B) ozonolysis
(C) photolysis
(D) hydration

44. (I) aniline
(II) benzene
(III) nitro-benzene
The correct order of reactivity towards the electrophilic substitution of compounds is :
(A) II > III > I
(B) I < II > III
(C) I > II > III
(D) III > II > I

45. The pH of $10^{-8}$M solution of HCl in water is :
(A) 8.0
(B) –8.0
(C) between 7 and 8
(D) between 6 and 7

46. Given :

$$C + \frac{1}{2}O_2 \rightarrow CO, \quad K_C = 4$$

$$CO + \frac{1}{2}O_2 \rightarrow CO_2, \quad K_C = 2$$

Then for the reaction,
$C + O_2 \rightarrow CO_2$
the value of $K_C$ will be :
(A) $\frac{1}{2}$
(B) 2
(C) 6
(D) 8

47. The most abundant metal and non-metal in earth's crust are :
(A) iron and carbon
(B) iron and oxygen
(C) aluminium and oxygen
(D) copper and sulphur

48. Which ore does not undergo self-reduction ?
(A) HgS
(B) $Ag_2S$
(C) $Cu_2S$
(D) PbS

49. Which one of the following pairs will have the same number of molecules ?

(A) 1g. of hydrogen and 44g. of carbon dioxide

(B) 2g. of hydrogen and 44.8 litres of carbon dioxide at NTP

(C) 2g. of hydrogen and 2g. of carbon dioxide

(D) 1g. of hydrogen and 11.2 litres of carbon dioxide at NTP

50. Equal masses of Zinc (atomic mass 65) and Iodine (atomic mass 127) were allowed to react till completion of the reaction to form Zinc iodide. Which substance is left unreacted and to what fraction of its original mass ?

(A) I ; 0.744

(B) Zn ; 0.744

(C) I ; 1.488

(D) Zn ; 1.488

51. For a given mass of gas, if its pressure is reduced to one half and the absolute temperature is doubled, then its volume will be : (where v is the initial volume)

(A) $\frac{V}{4}$

(B) 2V

(C) 4V

(D) unaltered

52. Read the statements given below :

(i) When a liquid is taken in a closed vessel, evaporation and condensation take place simultaneously.

(ii) Rate of condensation decreases as the number of molecules in the vapour phase increases.

(iii) When the rate of condensation and rate of evaporation are equal, the pressure exerted by the vapours of the liquid is called vapour pressure.

Out of the above

(A) Both (i) and (ii) are wrong

(B) Both (i) and (iii) are wrong

(C) Both (i) and (ii) are correct

(D) Both (i) and (iii) are correct

53. Considering the nature of overlap of atomic orbitals to form the molecule, which one of the following molecules is different from others ?

(A) Hydrogen

(B) Nitrogen

(C) Oxygen

(D) Fluorine

54. The correct order of the size of sp, $sp^2$ and $sp^3$ hybrid orbitals of carbon atom is

(A) $sp > sp^2 > sp^3$

(B) $sp > sp^3 > sp^2$

(C) $sp < sp^2 < sp^3$

(D) $sp^3 > sp > sp^2$

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55. The oxidation number of nitrogen in its compounds can lie between :

(A) –3 to +7

(B) +3 to +5

(C) 0 to +5

(D) –3 to +5

56. 25 ml of aqueous solution of Hydrochloric acid containing 7.3 gms of the acid per litre neutrallised 30 ml of aqueous solution of caustic soda. What is the normality of the alkali solution ?

(A) $\frac{N}{2}$

(B) $\frac{N}{4}$

(C) $\frac{N}{6}$

(D) $\frac{N}{8}$

57. If $E_1, E_2, E_3$ ..... $E_n$ represent the energy of 1st, 2nd, 3rd..... nth shell respectively, then

(A) $E_2 - E_1 > E_3 - E_2 > \ldots\ldots > E_n - E_{n-1}$

(B) $E_2 - E_1 < E_3 - E_2 < \ldots\ldots < E_n - E_{n-1}$

(C) $E_2 - E_1 = E_3 - E_2 = \ldots\ldots = E_n - E_{n-1}$

(D) None of the above is correct

58. Which set of quantum numbers is **not** correct ?

| | n | $l$ | m | s |
|---|---|---|---|---|
| (A) | 2 | 1 | 0 | $+\frac{1}{2}$ |
| (B) | 2 | 2 | –1 | $+\frac{1}{2}$ |
| (C) | 2 | 1 | +1 | $-\frac{1}{2}$ |
| (D) | 3 | 2 | 0 | $-\frac{1}{2}$ |

59. In the modern periodic table, the four nearest digonal neighbours of the element with atomic number 14 are :

(A) Al, Ge, Zn, N

(B) N, As, Ga, B

(C) C, O, Ge, Se

(D) P, Al, C, Ge

60. The ionic radii of $O^{2-}$, $F^-$, $Na^+$, $Mg^{2+}$ and $Al^{3+}$ show :

(A) a significant decrease from $O^{2-}$ to $Al^{3+}$

(B) an increase from $O^{2-}$ to $F^-$ and then decrease from $Na^+$ to $Al^{3+}$

(C) a decrease from $O^{2-}$ to $F^-$ and then increase from $Na^+$ and $Al^{3+}$

(D) a significant increase from $O^{2-}$ to $Al^{3+}$

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(D) a significant increase from $O^{2-}$ to $Al^{3+}$