ANNUAL EXAM 2023-24

Class- XI

Time: 3 Hrs **Subject-CHEMISTRY** **M.M.-70**

I. Multiple Choice Questions:- *[1×20=20]*

1. In the reaction $Fe_2(SO_4)_3 \rightarrow FeSO_4$, equivalent mass of ferric sulphate is:-

(a) M (b) $\frac{M}{2}$ (c) $\frac{M}{3}$ (d) $\frac{M}{6}$

2. Oxidation no. of sulphur in S_8 and S_2F_2 -

(a) 0,+1 (b) +2,+1 (c) 0,-1 (d) -2,+1

3. Vapour density of pure ozone is:-

(a) 48 (b) 32 (c) 24 (d) 16

4. On heating crystal of I_2 which is observed-

(a) Vapurisation (b) Sublimation
(c) Fusion (d) Condensation

5. Dianagnetic ion is:-

(a) Cu^{++} (b) Fe^{++}
(c) Ni^{++} (d) Zn^{++}

6. Isoelectronic is:-

(i) CH_3^+ (ii) H_3O^+

(iii) CO (iv) CH_3^-

(a) I & II (a) II & III

(c) III & IV (d) II & IV

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7. Correct order of ionic radii is:-

(a) $F^- < O^{2-} < Na^+ < Mg^{2+}$

(b) $Mg^{2+} < Na^+ < F^- < O^{2-}$

(c) $Na^+ < Mg^{++} < O^{2-} < F^-$

(d) $O^{2-} < F^- < Na^+ < Mg^{++}$

8. Maximum electron affinity is:-

(a) F **(b)** Cl **(c)** Br **(d)** I

9. Which of the following molecule if planar:-

(a) XeF_4 **(b)** NF_3 **(c)** SiF_4 **(d)** SF_4

10. sp^3 – hybrid orbital possesses:-

(a) $\frac{1}{4}$ *s-character* **(b)** $\frac{1}{2}$ *s-charcter* **(c)** $\frac{2}{3}$ *s-character* **(d)** $\frac{3}{4}$ *s-charcter*

11. Oxidation state of *Cl* in $CaOCl_2$

(a) 0 **(b)** +1 **(c)** -1 **(d)** +1,-1

12. Which of the following species can function both as oxidising as well as reducing agent:-

(a) Cl^- **(b)** ClO_4^- **(c)** ClO^- **(d)** MnO_4^-

13. In the following compound number of sp hybridised carbon:-

$CH_2=C=CH-CH-C=CH$ 7

(a) 2 **(b)** 3 **(c)** 4 **(d)** 5

14. Acetone (CH_3COCH_3) and propanal (CH_3CH_2CHO) are:-

(a) Functional isomer **(b)** Positional isomer

(c) Geometrical isomer **(d)** optical isomer

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15. :CCl_2 is:-

(a) a electrophile (b) a free radical
(c) a nucleophile (d) none

16. **Marsh gas is:-**

(a) CH_4 (b) C_2H_4
(c) C_2H_2 (d) all

17. **Fruit ripening gas is:-**

(a) CH_4 (b) C_2H_4
(c) C_2H_2 (d) none

18. **Baker and nathan effect is:-**

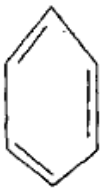
(a) Electromeric effect (b) Inductive effect
(c) Hyperconjugation (d) All

19. sp^3 **hybridised species is:-**

(a) CH_3 (b) CH_3^+ (c) CH_3^- (d) none

20. **Which of the following is not aromatic:-**

(a) 

(b) 

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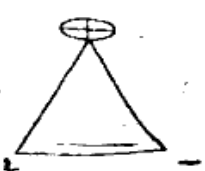
(c) 

(d) 

II. Write the answer of the following:- **[2×4=8]**

1. Determine the oxidation number of chromium in CrO_5.

2. What are the reason to formation of large number of organic compounds.

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3. Write difference between Orbit and Orbital.
4. How many gram of $KClO_3$ will be required to obtained 2.4 LO_2 at NTP.

III.1. Calculate no. of σ and π bond in following:- [3×4=12]

(a) C_6H_6 (b) $C_2(CN)_4$

2. Specific gravity of 27% (by mass) liquid NH_3 is 0.90 calculate molality and molarity of sdation.
3. Derive ostwald dilution law..
4. Calculate pH of 10^{-8}M HCl solution.

IV. Attempt any four questions:- [3×4=12]

1. Explain mechanism of butter action.
2. **Draw Lewis dot structure of following compounds:-**
   (a) $K_4[Fe(CN)_6]$ (b) NH_4Cl
   (c) NaH (d) PO_4^{---}
3. **Write electronic configuration of following ions-**
   (a) Mn^{4+} (b) Cr^{3+}
   (e) Fe^{3+} (d) Cu^{++}
4. **Write short note on following:-**
   (a) Heisenberg
   (b) Fajan's uncertainity principle rule
   (c) Aziuthal Quantum number
   (d) Lechatlier principle.

5. Explain sp^2 – hybridisation with example.

(V)1. Explain Reaction Mechanism of free radical substitution reaction with example.

OR

Calculate wavelength of matter were associated with a moving electron having mass 9.1×10^{-31} kg and kinetic energy 5×10^{-25} joule.

2. Establish the relation between Kp & Kc.

OR

Calculate four Quantum number for last electron in ground state of scandium.

(VI) **[2×4.5=9]**

1. Balance the following equation by oxidation number method.

$$I_2 + OH^- \longrightarrow I^- + IO_3^- + H_2O$$

OR

What is modern periodic law? Describe salient features of long form of periodic table.

2. An organic compound contain 31.9%C, 6.8%H, 18.5%N and rest oxygen. Calculate empirical formula.

OR

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