PAPER VERSION (B)

12191
CHEMISTRY
PART-II

NOTE: Attempt all questions of Section-A by filling the corresponding bubble on the MCQ ANSWER SHEET and return it to the Superintendent within given time, even if you have not attempted any question.

Time: 20 Minutes

SECTION-A

Marks: 18

1. The order of reactivity of halogens towards alkene is ..... A) $F_2 > I_2 > Cl_2 > Br_2$, B) $I_2 > Br_2 > Cl_2 > F_2$, C) $F_2 > Cl_2 > Br_2 > I_2$, D) $Cl_2 > Br_2 > I_2 > F_2$

2. Which of the following has high B.P? A) n-pentane, B) iso-pentane, C) neo-pentane, D) butane

3. Which one of the following is called black gold? A) coal, B) petroleum, C) natural gas, D) all of these

4. Lassaign's solution is also called ..... A) copper extract, B) nickel extract, C) sodium extract, D) bromine water

5. Which of these ions are colour as well as paramagnetic in nature? A) Ni^{2+}, B) Cu^{2+}, C) Cu^{+}, D) both A&B

6. Which one of the following order is correct for the size Fe^{2+}, Fe and Fe^{3+}? A) $Fe^{3+} < Fe^{2+} < Fe$, B) $Fe^{3+} < Fe < Fe^{2+}$, C) $Fe < Fe^{2+} < Fe^{3+}$, D) $Fe^{2+} < Fe^{3+} < Fe$

7. Lithium is the strongest reducing agent among alkali metals due to which of the following factors? A) ionization energy, B) electron affinity, C) lattice energy, D) hydration energy

8. Alkali metals have high oxidation potential and hence they behave as ..... A) electrolytes, B) lewis bases, C) oxidizing agents, D) reducing agents

9. For the compound, 1,1,2 Trichloro ethane ($Cl_2CH - CH_2Cl$), how many single peaks would you expect in NMR spectrum? A) 8, B) 2, C) 4, D) 6

10. Drained sewage has B.O.D ..... A) equal to that of water, B) less than that of water, C) more than that of water, D) none of these

11. Which one of the following is condensation polymer? A) PVC, B) polythene, C) nylon, D) none of these

12. The optimum pH of pepsin is ..... A) 1.5, B) 2.5, C) 1.0, D) 2.0

13. Corboxylic acid undergoes ionization due to ..... A) hydrogen bonding, B) absence of α hydrogen, C) high reactivity of α hydrogen, D) resonance stabilization of carboxylate ion

14. Aldehyde and ketones are distinguished by using ..... A) Tollen's reagent, B) Lucas reagent, C) Borshe reagent, D) all of these

15. Which of the following has highest solubility in water? A) $(CH_3)_2CHOH$, B) $(CH_3)_3COH$, C) C_2H_5OH, D) MeOH

16. On reacting with Grignard reagent, acetone gives ..... A) 1° alcohol, B) 2° alcohol, C) 3° alcohol, D) all of these

17. Which one of the following has higher B.P? A) methyl chloride, B) methyl bromide, C) methyl iodide, D) ethyl iodide

18. Aqueous KOH causes SN-reaction in alkyl halide. On which of the following alkyl halides KOH aq would like to attack easily. A) CH_3-CH_2-Cl, B) CH_3-CH_2-Br, C) CH_3-CH_2-F, D) CH_3-CH_2-I

P-438

12191

CHEMISTRY
PART-II

Time: 2 Hours 40 Minutes

SECTION-B

Marks: 40

1. Attempt any ten of the following. All carry equal marks.

i. Beryllium is different from the members of its group. Why?

ii. Why rise in ionization energy occurs at Mg and P in the same period?

iii. Why most of the transition metals and their compounds are used as catalyst?

iv. Calculate the empirical formula of a compound that contains C=27.3% and O=72.7%.

v. Why benzyne is less reactive than ethane?

vi. Why carboxylic acids are stronger acids than phenol, alcohol and water?

vii. Draw the open and cyclic structure of the following: (i) Glucose (ii) Fructose (iii) Galactose

viii. Aldehyde and ketones have high boiling point than corresponding alkanes. Why?

ix. What are the uses of dyes?

x. Ozonolysis is used to locate position of double bond in alkene. Explain your answer with example.

xi. Out of CO_2 and CFCs, which one has higher potential to cause global warming and why?

xii. What is oxonium salt?

xiii. What is meant by stretching and bending vibration?

SECTION-C

Marks: 27

NOTE: Attempt any three of the following questions. All questions carry equal marks.

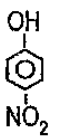
2. i. What is photochemical smog? Explain.

ii. What are complex ions? Explain their colour and coordination number.

3. i. What are alcohols? Give three methods of preparation of alcohol.

ii. Discuss unimolecular nucleophilic substitution (SN^1) reaction in alkyl halides.

4. i. Write IUPAC names for the following compounds.

(i) $CH_3-\underset{\displaystyle CH_3}{\underset{|}{CH}}-CHO$ (ii) $CH_3-\overset{\displaystyle O}{\overset{\|}{C}}-(CH_2)_2-CH_3$ (iii) 

(iv) $Na_3[Fe(CN)_6]$ (v) $HCONH_2$ (vi) $CH_3-(CH_2)_4-COOH$

ii. Draw structural formula for the given compounds: (i) Sodium Hexanitrocobaltate (ii) 2-Aminobutane (iii) 2-Chloro-3;4,4-trimethyl-2-pentene (iv) 2-Methylhexanedioic acid (v) 2-Bromo-3-chlorobutanal (vi) Methoxypropane

5. i. Starting from acetic acid how will you prepare each of the following:
(i) Ethanoyl chloride (ii) Ethanoic anhydride (iii) Ethanamide (iv) Ethylethanoate

ii. How aromatic ketone are prepared by Friedel-Craft acylation?