

Time: 2:40 Hours

SUBJECTIVE

Marks: 68

Note: Section I is compulsory. Attempt any THREE (3) questions from Section II.

SECTION - I

GUP-1-24

(2 x 8 = 16)

2. Write short answers to any EIGHT questions.

- Why the ionic radii of negative ions are larger than the size of their parent atoms? Give example.
- Give two defects in Mendeleev's periodic table.
- Why transition elements have variable oxidation states?
- KMnO₄ acts as oxidizing agent? Justify with two examples.
- Write the chemistry of setting of cement in first twenty four hours.
- Alkali metals give ionic hydrides. Give reason.
- Write the formula of (a) Asbestos (b) Halite
- What is the excellent method to prepare Alkyl Iodide?
- What is terpolymer? Give one example.
- What are the monosaccharides? Give one example.
- Compare the compound protein with derived protein.
- How Grignard reagent reacts with "HCHO"?

3. Write short answers to any EIGHT questions.

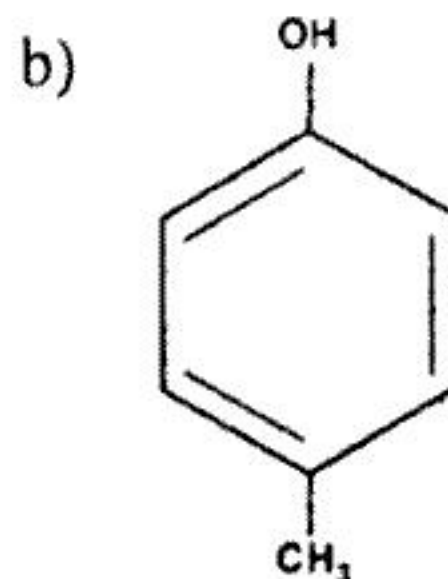
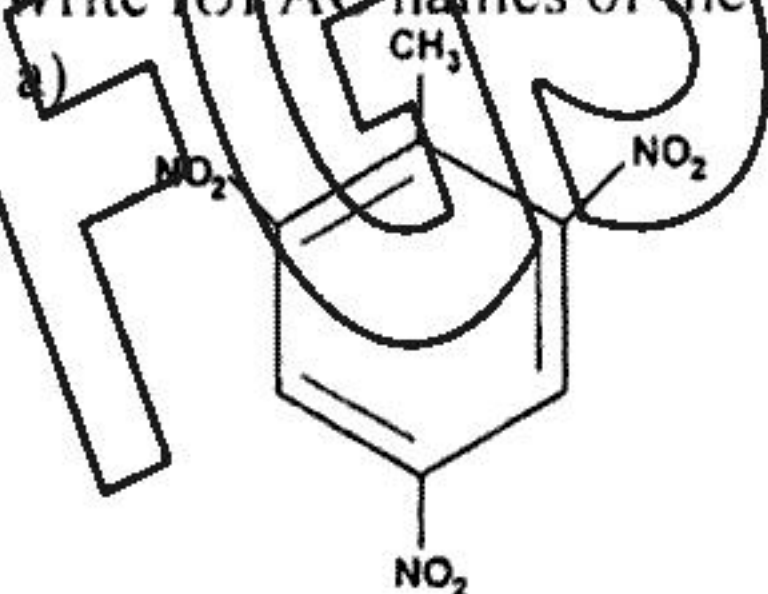
(2 x 8 = 16)

- What is aqua regia? How does it dissolve gold?
- NO₂ is oxidizing agent. Prove it with two suitable examples.
- Arrange the oxidizing power of following with reason: F₂, Cl₂, Br₂, I₂
- Why I₂ is solid while F₂ is gas?
- Define functional group with any two examples.
- Differentiate between metamerism and position isomerism, with suitable examples.
- How oxalic acid is prepared from acetylene?
- Why ethyne is less reactive than ethene?
- Why alkanes are called as paraffins?
- What are leachate?
- Define Biochemical Oxygen demand.
- What is lithosphere?

4. Write short answers to any SIX questions.

(2 x 6 = 12)

- How to prepare borax from colemanite?
- Give two important uses of silicates.
- What is white lead? Give its use.
- Write IUPAC names of the following molecules



(Turn Over)

- v. Ethyl alcohol is a liquid while methyl chloride is a gas, justify it.
- vi. Give the reaction of phenol with:
(a) Zn (b) HNO_3
- vii. How acetaldehyde reacts with the following reagents?
(a) HCN (b) I_2/NaOH
- viii. What is vinegar and give its use?
- ix. Write down the mechanism of reaction between acetic acid and methanol.

SECTION - II

5. (a) What is hydration energy? Give one example. Discuss its variation in groups and periods of periodic table. (1+1+2=4)
- (b) Write down any eight uses of lime in industry. (4)
6. (a) Give the reactions of Bleaching powder with (4)
- i. dil H_2SO_4 ii. HCl
- iii. NH_3 iv. CO_2
- (b) Describe the process of digestion of paper pulp in Neutral Sulphite chemical process. (4)
7. (a) What are organic compounds? Describe the following terms (give one example for each). (4)
- i. Alicyclic Compounds
- ii. Aromatic Compounds
- iii. Heterocyclic Compounds
- (b) Write down the chemical reaction of Ethyl Magnesium Bromide with CO_2 , HCHO , Acetone and Epoxide. (4)
8. (a) Explain acidic nature of alkyne in detail by giving two examples. (4)
- (b) What is aldol condensation? Give its mechanism. (4)
9. (a) Discuss catalytic oxidation of Benzene. (4)
- (b) How ethers are prepared from following? (4)
- i. Williamsons Synthesis ii. Ag_2O