

(Subjective Part)

Time allowed: 2:35 hours

Total Marks: 68

Note: Attempt any 14 questions from Section 'B' and any two questions from Section 'C' on the provided answer book.

SECTION – B (Marks 42)

Q.2 Attempt any fourteen questions. All parts carry equal marks. (14×3=42)

- i. Why cation has smaller size than its parent atom?
- ii. Why are compounds of transition elements coloured?
- iii. Al_2O_3 is amphoteric oxide. Justify it.
- iv. Why ethene is more reactive than ethane?
- v. By starting from phenol, what sort of products are possible by nitration and alkylation?
- vi. Why terminal alkynes are acidic in nature?
- vii. Which is the best method for preparation of alkyl halide from alcohol?
- viii. Convert aniline into phenol.
- ix. How methanol and ethanol can be differentiated?
- x. What products are formed when methanal react with conc. NaOH?
- xi. What is Kolbe-Schmitt reaction?
- xii. How nitriles can be converted to ketones?
- xiii. Write down different cyclic structures of glucose?
- xiv. How enzymes speed up biological reactions?
- xv. How indigo (blue) is converted into indigo white (colourless)?
- xvi. Differentiate between addition and condensation polymers?
- xvii. Write down any two sources of ozone depletion?
- xviii. Differentiate between primary and secondary pollutants?
- xix. Define chemical shift?
- xx. How mass spectrometer works?

SECTION – C (Marks 26)

Note: Attempt any two questions. Marks of each question are given within brackets.

- Q.3. (A)** Write down the possible products when sodium reacts with following: (2+2)
- a. O_2
 - b. H_2O
- (B)** Define Aromatic hydrocarbons. Discuss molecular orbital treatment of benzene in detail? (1+5)
- (C)** What is global warming. (3)
- Q.4. (A)** How following are contributing to water pollution: (2+2)
- a. Oil spillage
 - b. Industrial waste
- (B)** Define empirical formula. How it can be calculated by combustion analysis? (1+5)
- (C)** Write any three reactions in which C-O bond of alcohols is broken down. (3)
- Q.5. (A)** What is nucleophilic substitution reaction. How secondary alkyl halides will undergo nucleophilic substitution reaction. Explain it with help of any suitable example and its detailed mechanism. (1+5)
- (B)** Differentiate between line emission and absorption spectrum. (2+2)
- (C)** Write down the systematic names of the following complexes: (3)
- a. $[\text{Co}(\text{NH}_3)_6]\text{Cl}_3$
 - b. $[\text{Pt}(\text{NH}_3)_2\text{Cl}_4]$
 - c. $\text{Na}_2[\text{NiCl}_4]$

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