

Chemistry (Theory) Paper-II

Attempt FIVE Questions in all. Section-A is Compulsory. Select TWO Questions from Section-B and TWO Questions from Section-C.

SECTION-A

1- Write short answers of any FIVE:

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- i) What is a functional group? Give functional group of amides.
- ii) Define electrophoresis.
- iii) What is difference between strong and weak electrolyte? Give examples also.
- iv) Give Ostwald's dilution law.
- v) Define transport number.
- vi) What are unstable radioactive isotopes? Give examples also.
- vii) Give two Hazards of Alpha (α) radiations.
- viii) What is meant by liquid crystals?

SECTION-B

2- a) What is Infrared spectroscopy? Give its principle. How it helps to detect different functional groups in an organic compound? 4

b) λ_{\max} for ethane is 171nm but it is 217nm for 1, 3-butadiene. Explain why? 4

3- a) Give Hardy-Schulze Rule for sols. Explain with examples. 4

b) What are Gels? Give at least 3 different types of gels. 4

4- a) What is difference between natural and artificial radioactivity? 4

Give 3 differences of properties of Alpha (α) Beta (β) and Gamma (γ) rays. 4

b) Give Wilson-Cloud Chamber method to measure radiations of a radioactive material. 4

5- a) Give principle of UV-Visible spectroscopy to detect different chromophores. 4

b) Explain the terms: 4

- i) Red Shift or Bathochromic Effect
- ii) Blue Shift or Hypsochromic Effect

SECTION-C

6- a) Give composition of Glass and process of manufacturing glass. 4

b) Explain the following types of glass: 4

- i) Soda-Lime Glass
- ii) Safety Glass
- iii) Jena Glass
- iv) Quartz Glass

7- a) Give name and formulas of two ores of silver. Also give process of extraction of silver from one of its ores. 4

b) Give names and formulas of 2 different ores of chromium. Also give process of extraction of chromium from one of the ores. 4

8- a) What are different phosphates fertilizers? Give process of manufacturing phosphate fertilizer. 4

b) Give manufacturing process of urea. 4

9- a) Define the following terms: 4

- i) Absolute Alcohol
- ii) Rectified Spirit
- iii) Methylated Spirit
- iv) Tincture Iodine

b) What are liquid crystals? Give their types, properties and uses. 4

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