

**M.Sc Sem-3 Examination****504****Chemistry EA-1 (Ind Analytical)****Time : 2-30 Hours]****November-2024****[Max. Marks : 70**

- Q.1 (i)** What is a Hydrosphere. Discuss methods to determine chloride and dissolved oxygen. **07**

- (ii)** Discuss the role ion-selective electrodes in determination of water quality parameters and describe a method in brief to determine fluoride by ion-selective electrodes. **07**

**OR**

- (i)** How is soil sampling performed. Discuss a method to determine available nitrogen in soil samples. **07**

- (ii)** What is sampling. Describe methods for sampling of gases. **07**

- Q.2 (i)** What are proteins. Describe the dye-binding method for determination of protein content in food samples. **07**

- (ii)** Discuss methods to determine water content in food samples. **07**

**OR**

- (i)** Explain in brief determination of saponification and iodine value of fats and oils. **07**

- (ii)** What are vitamins. Describe the methods to determine Vitamin A, and Vitamin D in food samples. **07**

- Q.3 (i)** Give the composition of solder alloy. Discuss in detail a method to analyze lead content in solder. **07**

- (ii)** What is the composition of Portland cement. Describe in brief determination of alumina using any instrumental technique. **07**

**OR**

- (i)** Discuss the analysis of titanium dioxide in pigments. **07**

- (ii)** State the classification of petrochemical products. Explain in brief the fractional distillation process. **07**

- Q.4 (i)** Describe the classification and properties of pesticides based on mode of action, targeted pest species and chemical composition. **07**

- (ii)** Discuss the analysis of calcium and sodium in fertilizers using flame photometry. **07**

**OR***(P.T.O)*

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| <b>(i)</b>  | What are soaps and detergents. Write a note on their classification and cleansing action. | <b>07</b> |
| <b>(ii)</b> | Write a note on determination of organophosphorus pesticides.                             | <b>07</b> |

**Q.5 Answer any seven out of twelve (each question carries 2 marks) 14**

- (i)** What is meant by Environmental Impact Assessment.
  - (ii)** State the limitations of Kjeldahl's method.
  - (iii)** Give the full form of BOD and COD.
  - (iv)** Give the full form of AOAC and AOCS.
  - (v)** State the principle and importance of the Halphen test.
  - (vi)** Name the food/food products that contain Vitamin B and Vitamin K.
  - (vii)** What do you understand by fire point and flash point.
  - (viii)** Define calorific value.
  - (ix)** What is a pigment.
  - (x)** What are time release fertilizers?
  - (xi)** Give the full form of CTAB and CPC.
  - (xii)** Define botanical pesticides and a suitable example.
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