

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)

- (i) What are soaps and detergents. Write a note on their classification and cleansing action. **07**
- (ii) Write a note on determination of organophosphorus pesticides. **07**

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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