

M.Sc. Semester - 1 (CBCS) Examination
Jan/Feb. -2022 [OLD COURSE]
ANALYTICAL CHEMISTRY(CORE)

Time: 1:30 Hours**Marks: 42****Instructions:**

1. Figures to the right indicate marks.
2. There are five questions in the question paper.
3. Answer any three of the following questions.

Q.1 Answer the following: (Any Seven) 14

- (a) Briefly explain types of titrations.
- (b) Define Homogeneous and Heterogeneous solutions with suitable example.
- (c) Enlist basic functions of analytical chemist.
- (d) Explain absolute error with equation.
- (e) Write advantage of AAS over flame photometry.
- (f) Define the following terms: accuracy, precision.
- (g) Give symbolic or representative diagram of EMR with details.
- (h) Enlist basic elements of GLP.
- (i) Give brief account on rancidity in oil.
- (j) What is acid value of oil?

Q.2 Answer the following: (Any Two) 14

- (a) Give detailed account of Instrumental methods of analysis with brief introduction and application.
- (b) Write a detailed note on physical and chemical properties of oil.
- (c) Write a note on solvents for non-aqueous titrations.

Q.3 Answer the following: 14

- (a) Discuss interferences in atomic absorption spectroscopy.
- (b) Discuss the detection of adulteration in Rice bran oil.

OR

Q.3 Answer the following:

- (a) Differentiate between
 - (i) Classical and Instrumental methods of analysis.
 - (ii) Fluorimetry and Phosphorimetry
- (b) Explain the titration theory of weak acid in non-aqueous titration. How will you titrate Benzoic acid as weak acid in n-butylamine solvent by sodium methoxide? Write the chemical reaction for this titration.

Q.4 Answer the following: (Any Two) 14

- (a) Write a note on redox titration with suitable example.
- (b) Discuss the theory of luminance spectroscopy through excitation process in molecule.
- (c) Draw the schematic diagram of AAS, give its principle and explain about its radiation source.

Q.5 Answer the following: (Any Two) 14

- (a) Define saponification value; how will you determine saponification value of oil?
- (b) Explain determination of RMPK value and peroxide value in oil sample
- (c) Discuss classification and basic requirements of volumetric titrations.
- (d) Draw the labeled diagram of flame photometer and discuss the functions of it.
