



JBG-003-010104 Seat No. _____

M. Sc. (Sem. I) (CBCS) Examination

December – 2019

C-104 : Analytical Chemistry

(Old Course)

Faculty Code : 003

Subject Code : 010104

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

Instruction :

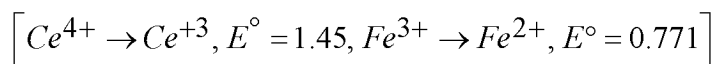
- (1) All questions are compulsory.
- (2) All questions carry equal marks.

1 Answer the following (Any seven) **14**

- (a) What is complexometric titration ? Give the protonated and deprotonated structure of EDTA.
- (b) Define equivalent weight. What is standard solution ? How it is prepared ?
- (c) What is application of radioactive dilution methods ?
- (d) Explain the principle of Chelation titration indicators. Give fine names of indicators.
- (e) Analysis of potassium in food by flame photometric method.
- (f) Differentiate :
 - (i) Nephelometry and fluorimetry
 - (ii) Turbidimetry and colorimetry.
- (g) What is luminescence ? Differentiate fluorescence and phosphorescence.
- (h) Explain the principle of flame photometry.
- (i) Give the classification of oil and fats.
- (j) How will you analyze allyl isothiocyanate in mustered oil ?

- 2 Answer the following (any three) 14
- (a) How will you analyse protein in food sample ?
 - (b) How will you analyze moisture in food sample ? Give its role in food material.
 - (c) Write note on R.M.P.K. Value
 - (d) What is saponification value ? Give its analytical importance and principle. Discuss determination process in it.

- 3 Answer the following : 14
- (a) What are neutralization titrations ? Calculate the pH at 0, 10, 25, 50 and 60 ml. titrant in the titration of 50 ml of 0.10 M CH_3COOH with 0.10 M NaOH ($k_a = 1.75 \times 10^{-5}$). Suggest the indicator for this titration.
 - (b) Calculate the potential upon addition of 0.1 M cerium (IV) sulphate to a solution of 0.1 M iron (II) sulphate when 0.0, 10.0, 49.0, 100.0 and 110.0 ml is added.



OR

- (a) What are the conditions for precipitation titration ? Calculate PCl for the titration of 100.0 ml of 0.10 m CT with 0.10 M AgNO_3 for the addition of 0.0, 20.0, 99.0, 100.0 and 100.5 ml AgNO_3 .
 - (b) Write a note on Volhard's method and briefly explain the analysis of mixture of halides with suitable example.
- 4 Answer the following : (Any two) 14
- (a) Draw the labelled block diagram of flame photometer and discuss the functioning of it.
 - (b) Discuss the principle and applications of turbidimetry and nephelometry.
 - (c) What is phosphorimetric analysis ? Discuss instruments for phosphorimetric analysis.

- 5 Answer the following (Any two) : 14
- (a) Derive a hypothetical curve for triprotic acid titration with alkali by taking appropriate example and suggest the indicators required for it.
 - (b) What is turbidimetry ? Discuss applications of it.
 - (c) What is rancidity ? How does it develop in oil ? Discuss its tests.
 - (d) Compare the fluorimetry and phosphorimetry with absorption method using energy level diagram.