



Seat No. : \_\_\_\_\_

# NI-141

November-2025

M.Sc., Sem.-III

## CHE-(A) 504 : Analytical Chemistry (Industrial Analytical Techniques) (Elective)

Time : 2:30 Hours]

[Max. Marks : 70

1. (i) What is sampling ? Discuss briefly the sampling of Air. 7  
(ii) Provide a brief overview of the analysis methods of DO, BOD and COD for water analysis. 7

**OR**

1. (i) Explain the SPANDAS method for Fluoride and the Turbidimetric Method for sulfate in water analysis. 7  
(ii) What is the Composition of Soil ? Explain the Soil Profile. 7
2. (i) Discuss in brief two methods for determination of fats. 7  
(ii) Write a short note on determination of crude fibers. 7

**OR**

2. (i) Explain in brief adulteration of milk and milk products. 7  
(ii) Briefly describe characterization of oil by iodine value and acid value. 7
3. (i) What are Ferro alloys ? Explain the six types of Ferro alloys and their essential applications. 7  
(ii) Explain  $TiO_2$  Analysis by XRD in paint and pigments. 7

**OR**

3. (i) Discuss on the Molybdenum blue method for Phosphorus in steel. 7  
(ii) Describe the principle and procedure involved in the polarographic estimation of alumina in cement samples. 7
4. (i) How to determine Aldrin and Malathion pesticide by Colourimetry method ? 7  
(ii) How to analyze Calcium and Sodium in fertilizers using Flame photometry ? 7

**OR**

4. (i) Classify fertilizers with examples. Explain the need for each type. 7  
(ii) Explain the chemistry and mechanism of soap cleaning. 7

5. Answer any **seven** out of **twelve** : (Each question carries **2** marks)

**14**

- (i) What is Environmental Impact Assessment (EIA) ? Briefly outline its main steps.
  - (ii) Differentiate between accuracy and precision.
  - (iii) Define primary and secondary air pollutants and provide examples.
  - (iv) Give full forms of (a) AACC (b) AOCS
  - (v) What is Molisch test ?
  - (vi) What is Baudouin's method used for ? Give its principle.
  - (vii) What is the difference between Ores, Pure Metals, and Alloys ?
  - (viii) What are the constituent metals that make up solder and bronze ?
  - (ix) Define : Flash Point and Carbon Residue.
  - (x) What does the TFM value of a soap indicate ?
  - (xi) Define the term 'Pesticide' as per its function.
  - (xii) What is a 'Micelle' ?
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