

Roll No

EI - 505**B.E. V Semester**

Examination, December 2015

Analytical and Industrial Instrumentation**Time : Three Hours****Maximum Marks : 70**

- Note:** i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
 ii) All parts of each questions are to be attempted at one place.
 iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.
 iv) Except numericals, Derivation, Design and Drawing etc.

Unit - I

1. a) What are Analytical instruments?
 b) What is electrochemical reaction?
 c) What is thermal conductivity analysis?
 d) Explain estimation of Oxygen, Hydrogen, Methene, CO₂ and CO.

OR

Explain Paramagnetic oxygen meters.

Unit - II

2. a) What are radiation sources and detectors?
 b) What is fundamental law of photometry?

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- c) Differentiate between ultraviolet and visible photometry.
 d) Explain basic components of IR spectrophotometers.

OR

Explain infrared spectrophotometry.

Unit - III

3. a) List types of mass spectrometers.
 b) Explain applications of mass spectrometers.
 c) What are α -rays and α -ray spectra?
 d) Explain α -ray method for measurement of radiation.

OR

Explain ESR spectroscopy.

Unit - IV

4. a) What is viscosity?
 b) What is electrical conductivity?
 c) What is turbidity and pH?
 d) Explain Technique for density measurement of solids and liquids.

OR

Explain measurement of viscosity.

Unit - V

5. a) What is environmental pollution?
 b) What is Air pollution?
 c) What is water pollution?
 d) Explain water pollution monitoring instruments.

OR

Explain Air pollution monitoring instruments.
