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**Question Paper Code: 35505**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

Fifth Semester

Electronics and Instrumentation Engineering

(Common to Instrumentation and Control Engineering)

01UEI505 – ANALYTICAL INSTRUMENTS

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. State Beer's Law.
2. What is meant by flame emission spectrometry?
3. List some of the Gas Chromatographic detectors.
4. Why high pressure pumps are used in HPLC?
5. List the method used for measuring oxygen in flue gas.
6. Define thermal conductivity.
7. Define pH value.
8. What are the limitations of glass electrode?
9. What are the advantages of NMR spectrometer?
10. What are the applications of mass spectrometry?

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the construction and working of FTIR spectrophotometers. (16)

Or

(b) Explain the single beam and double beam spectrophotometers. (16)

12. (a) Discuss any two types of detector used in liquid chromatography. (16)

Or

(b) With a help of neat sketch, explain the construction and working of Katharometer. (16)

13. (a) How Carbon Monoxide (CO) and Hydrocarbons are estimated? Explain in detail. (16)

Or

(b) Explain the measurement of sulphur dioxide and carbon monoxide. (16)

14. (a) With neat diagram, explain the construction and working of dissolved oxygen analyzer. (16)

Or

(b) Explain the principle of gas sensing electrode. (16)

15. (a) Explain the construction and working principle of Electron Spin Resonance (ESR) spectrometer with neat diagram. (16)

Or

(b) Explain the different types of mass analyzers. (16)

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