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**Question Paper Code: 31555**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

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 are the applications of Flame Photometry?
3. List some of the Gas Chromatographic detectors.
4. Name the detector used in Liquid Chromatography.
5. List the method used for measuring oxygen in flue gas.
6. State the principle of dust monitor.
7. Define pH value.
8. Name the types of ion selective electrodes.
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) Illustrate the working principle of double beam IR 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) Analyze the components and operation of the high performance liquid chromatography. (16)
13. (a) Explain the function of Hay's magneto strictive analyzer used for measurement of oxygen. (16)
- Or
- (b) Explain the measurement of sulphur dioxide and carbon monoxide. (16)
14. (a) Explain with neat diagram the construction and working of sodium 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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