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Question Paper Code: 55505

B.E. / B.Tech. DEGREE EXAMINATION, AUGUST 2021

Fifth Semester

Electronics and Instrumentation Engineering

(Common to Instrumentation and Control Engineering)

01UEI505 – ANALYTICAL INSTRUMENTS

(Regulation 2013)

Duration: 1:15hrs

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Define Beer-Lambert law.
2. List the different types of spectrophotometers.
3. List the various detectors used in gas chromatography.
4. What are the requirements for a pumping system in HPLC?
5. List the method used for measuring oxygen in flue gas.
6. Define thermal conductivity.
7. Define pH value.
8. Write a note on silicon analyzer.
9. What are the advantages of NMR spectrometer?
10. What are the applications of mass spectrometry?
11. Describe the principle of thermal conductivity analyzer.
12. What are the limitations of glass electrode?
13. Tell the application of Silica analyzer.

14. What is the principle of electron spin resonance?
15. Classify the NMR spectrometer.

PART – B (3 x 10= 30 Marks)

(Answer any three of the following questions)

16. Illustrate the working principle of double beam IR spectrophotometers. (10)
17. Describe the operation of flame ionization detector in detail. (10)
18. Summarize the working principle of any one type of Oxygen (O₂) gas analyser. (10)
19. With neat diagram, explain the construction and working of dissolved oxygen analyzer. (10)
20. Explain the working of a Scanning Electron Microscope (SEM) with neat sketch. (10)