



B.E DEGREE EXAMINATIONS: MAY 2015

(Regulation 2009)

Sixth Semester

ELECTRONICS AND INSTRUMENTATION ENGINEERING

EIE110: Analytical Instruments

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Basic element of an analytical instruments
 - a) Spectral scanning device
 - b) Signal processing and read out
 - c) Both a & b
 - d) None
2. Functions of electrochemical cells
 - a) To convert radiant energy into light
 - b) To convert chemical energy into electrical
 - c) To convert chemical energy into light
 - d) To convert electrical energy into radiant
3. In an Liquid-solid chromatography which one is stationary phase
 - a) Solid
 - b) Gas
 - c) Liquid
 - d) All the above
4. Rukidium silica is mainly used to find out _____ compounds in a GC detection system.
 - a) Hydrocarbons
 - b) Phosphrous
 - c) Sulphur
 - d) Helium
5. Length of a guard column varies from
 - a) 25-28 cm
 - b) 3-10 cm
 - c) 12-15cm
 - d) 15-20 cms
6. Which one causes irritation of throat and eyes
 - a) CO₂
 - b) NO₂
 - c) Hydro carbons
 - d) SO₂
7. Property of a ion selective electrode
 - a) Minimal solubility
 - b) Repeatability
 - c) Reproducibility
 - d) Non-conductivity

b) Explain the principle of gas chromatography and the functions of various units in the instrument.

23. a) (i) Write a note on physical method of oxygen measurement. (7)

(ii) Explain any one method of H₂S analyser. (7)

(OR)

b) (i) Explain the measurement of sulphur dioxide and carbon monoxide. (7)

(ii) Describe the working and construction of reflected light dust monitor. (7)

24. a) (i) Describe the methods of estimation of hydrocarbons in detailed. (7)

(ii) Describe in detail about the constructional details and working principles of reference electrodes. (7)

(OR)

b) Explain the measurement of pH using glass electrode, with a neat diagram.

25. a) With neat diagram, explain the principle, construction and working of NMR spectrophotometer.

(OR)

b) Explain about different types of mass analyzers.
