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53 (IE 505) ANIN

2016

ANALYTICAL INSTRUMENTATION

Paper : IE 505

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer **any five** questions out of **seven**.

1. (a) Explain the construction and working of a photodiode. 6
- (b) With a neat diagram, explain single-beam photometer. 6
- (c) With a neat diagram, explain atomic absorption spectrophotometer. 8
2. (a) Explain thermal conductivity and differential flame ionization detectors in gas chromatography. 14

Contd.

- (b) With a neat diagram, explain liquid chromatography. 6
3. (a) Explain *any two* types of gas analyzer. 14
- (b) With neat diagram, explain flame photometric method for measuring sulphur dioxide in air. 6
4. (a) Explain infrared absorption technique for measuring carbon monoxide in air. 8
- (b) Explain a technique for measuring hydrocarbons in air. 6
- (c) Explain biosensor. 6
5. Explain *three* types of mass spectrometers. 20
6. (a) Explain fluorescence and electrical conductivity detectors in liquid chromatography. 14
- (b) Explain pH meter. 6

7. Write short notes on :

4×5=20

- (a) Flame photometer
 - (b) Photomultiplier Tube
 - (c) Mass detector in HPLC
 - (d) Chromatography Column.
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