

C 3431

(Pages : 2)

Name.....

Reg. No.....

**FOURTH SEMESTER M.Sc. DEGREE EXAMINATION, JUNE 2016**

(CUCSS)

Chemistry

CH 4E 04—INSTRUMENTAL METHODS OF ANALYSIS (Elective)

(2010 Admissions)

Time : Three Hours

Maximum : 36 Weightage

**Section A**

*Answer all questions.*

*Each question carries a weightage of 1.*

1. A solution absorbs 99% of the radiation passing through it. Find the optical density.
2. Explain the term 'nebulization'.
3. Distinguish between electron spectroscopy and electronic spectroscopy.
4. Explain terms KLL and KLM with reference to AES.
5. What is chronopotentiometry ?
6. Distinguish between Voltammetry and Polarography.
7. Name *two* detectors employed in GC.
8. What is affinity chromatography ?
9. Distinguish between DTA and DTG.
10. How is dissolved oxygen in water sample estimated ?
11. Define iodine value. Explain its significance.
12. How do you estimate serum electrolytes ?
13. What is ELISA test ?
14. Write *one* example each for (a) biosensor ; (b) chemosensor.

(14 × 1 = 14 weightage)

**Section B**

*Answer any seven questions.*

*Each question carries a weightage of 2.*

15. Briefly explain the working of monochromators generally employed in *uv*-visible spectrophotometer.
16. Briefly explain the principle of AES.
17. What is biamperometry ? Discuss.

**Turn over**

18. What is oxine ? Discuss its use in separation science.
19. Water is electrolysed between two Pt electrodes. If 0.50 A is passed for 30 minutes. Calculate the amount of  $H_2$  and  $O_2$  released at Cathode and anode respectively.
20. Compare amperostatic coulometry with potentiostatic coulometry.
21. Briefly discuss the principle and applications of TMA.
22. What is  $NO_x$  ? How is it estimated ?
23. What are the common food adulterants ? Discuss.
24. How do you estimate chlorinated pesticides ? Explain.

(7 × 2 = 14 weightage)

### Section C

*Answer any two questions.*

*Each question carries a weightage of 4.*

25. Discuss the instrumentation in IR spectrometer.
26. Discuss the theory and applications of HPLC.
27. Discuss the instrumentation in DSC.
28. What are water quality parameters ? How are they estimated ? Discuss.

(2 × 4 = 8 weightage)