

**C 3431**

(Pages : 2)

Name.....

Reg. No.....

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

(CUCSS)

Chemistry

CH 4E <sup>04</sup> 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 x 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<sub>2</sub>** and **O<sub>2</sub>** 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<sub>x</sub>** ? How is it estimated ?
23. What are the common food adulterants ? Discuss.
24. How do you estimate chlorinated pesticides ? Explain.

(7 x 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 x 4 = 8 weightage)