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19/6/13 FN

Reg. No. :

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Question Paper Code : 65078

5 Year M.Sc. DEGREE EXAMINATION, MAY/JUNE 2013.

Second Semester

Information Technology

XCS 123 — CHEMISTRY

(Common to 5 Year M.Sc. Computer Technology)

(Regulation 2003)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State the region of infrared spectrum.
2. State any two advantages of FT spectroscopy?
3. Write short notes on piezo electric polymers with a suitable example.
4. Give two examples of conducting polymers.
5. State any two metals used in microelectronics.
6. What is a dielectric?
7. What types of polymers are used in photolithography?
8. What is etching as applied to the making of printed circuit boards?
9. What are photovoltaic cells?
10. What are primary batteries?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss the instrument used in double beam UV-Visible spectrophotometer. (8)
- (ii) Discuss the interaction of electromagnetic spectrum with matter. (8)

Or

- (b) (i) Give an account of monochromators transducers and photomultiplier tubes used in optical spectroscopy. (8)
- (ii) Explain the principle of X-ray diffraction. (8)
12. (a) (i) Discuss the use of negative photoresists in the construction of printed circuit boards. (8)
- (ii) Give an account of Liquid crystalline polymers and their uses. (8)

Or

- (b) (i) Discuss the use of packing materials and encapsulants in electric and electronic industries. (8)
- (ii) Give an account of polymer composites and their uses. (8)
13. (a) (i) Give an account of insulating materials and their uses in specific places in microelectronics. (8)
- (ii) Discuss the different forms of magnetic materials and state their uses in microelectronics. (8)

Or

- (b) (i) Explain the different types of semiconductors with suitable examples and state their uses in microelectronics. (8)
- (ii) Give an account of soldering materials and their uses in microelectronics. (8)
14. (a) (i) Give an account of N-type metal-oxide-Semiconductor logic. (8)
- (ii) Give an account of photolithography used in the making of printed circuit boards. (8)

Or

- (b) (i) Give an account of N-type metal-oxide-semiconductor logic. (8)
- (ii) Give an account of Ga-As technology for use in high speed devices. (8)

15. (a) (i) Discuss the construction of Lead-Acid batteries and its applications. (8)
- (ii) Explain the construction and uses of H_2-O_2 Fuel cell. (8)

Or

- (b) (i) Discuss the construction of Ni-Cd batteries, its recharging and applications. (8)
- (ii) Give an account of solar cells. (8)
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