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Question Paper Code : 75532

5 Year M.Sc. DEGREE EXAMINATION, NOVEMBER/DECEMBER 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. What is an electromagnetic radiation?
2. State the regions of electromagnetic spectrum.
3. What are piezo and pyro electric polymers?
4. Name two encapsulants used in electronic industries.
5. What are dielectrics?
6. What are hard and soft magnets?
7. Define integrated circuit.
8. What is photolithographic process?
9. Differentiate between primary and secondary battery.
10. What is an UPS?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the principle involved in X-ray diffraction. (8)
(ii) Explain the following :
(1) CTD detectors
(2) Silicon photodiodes. (8)

Or

- (b) (i) Write note on photomultiplier tube. (8)
(ii) With a neat diagram illustrate and explain the instrument design of an optical spectrometer. (8)
12. (a) (i) Explain how nano materials are used in electrical and electronic industries. (8)
(ii) Write a note on :
(1) Fiber reinforced polymer composites
(2) Liquid crystalline polymers. (8)

Or

- (b) (i) Explain briefly about lithographic and packing materials. (8)
(ii) What are conducting polymers? How are they classified? Explain in detail. (8)
13. (a) (i) Distinguish between intrinsic and extrinsic semiconductors. (8)
(ii) Metals are good conductor of heat and electricity. Explain. (8)

Or

- (b) (i) Explain the term dielectric polarization and dielectric strength. (8)
(ii) What is an insulator? Explain the properties of a good insulator. (8)
14. (a) (i) With a neat diagram explain the fabrication of PMOS. (8)
(ii) Write a note on Gallium-Arsenide technology. (8)

Or

- (b) (i) Sketch and explain the theory of CMOS. (8)
(ii) Explain the two printing methods employed in the fabrication of PCB. (8)

15. (a) (i) Outline the principle and working of a lead-acid battery. (8)
(ii) Construct a nickel-cadmium cell and indicate the cell reaction. (8)

Or

- (b) (i) Write informative notes on solar cell. (8)
(ii) Explain the construction and working of $H_2 - O_2$ fuel cell. (8)
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