J 3389

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2009.

Second Semester

Computer Science and Engineering

PH 1157 — PHYSICS — II

(Regulation 2004)

(Common to B.Tech. Information Technology)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   What is the difference between a mesh and a loop?

2.   What do you mean by linear circuit element and bilateral circuit element?

3.   How will you convert Thevenin's equivalent circuit into Norton's equivalent circuit?

4.   Why are electronic circuit generally operated under maximum power transfer conditions?

5.   What are elemental and compound semiconductors?

6.   What is the principle behind a Zenar regulator?

7.   What is a bridge rectifier?

8.   What is the need of a multiple capacitor?

9.   What are low pass, high pass filters?

10. What are integrators and differentiators?

11. (a) Obtain and explain Kirchoff's I and II laws. Mention their applications.

Or

(b) (i) Why does the domestic appliance connected in parallel?
(ii) What will be the hot resistance of a 100W, 250V incandescent lamp?

12. (a) State Thevenin's theorem and Norton's theorem. What is the difference between Thevenin's theorem and Norton's theorem? What are the advantages of Thevenin's theorem over Norton's theorem?

Or

(b) State and derive maximum power transfer theorem. Write any two applications of it. How will you prove that efficiency under maximum power transfer condition is 50%?

13. (a) What are intrinsic and extrinsic semiconductors? How does the Fermi level vary with concentration of impurities in P type semiconductor?

Or

(b) Explain FET and MOSFET. How does a MOSFET function in depletion mode and enhancement mode? Mention their applications.

14. (a) Give the theory of sinusoidal oscillation. What are RC and LC oscillators? Give each one an example and one application.

Or

(b) What is a transistor explain the characteristics of unbiased transistor and biased transistor? What are its applications?

15. (a) Give an account on OPAMPs and their basic applications.

Or

(b) Give an account on

(i) Subtractor

(ii) Summing amplifier

(iii) Relaxation oscillator

(iv) Digital to analog converter.

————————

J 3389