

**L 1155**

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2006.

Second Semester

Computer Science and Engineering

PH 1157 — PHYSICS — II

(Common to Information Technology)

(Regulations 2004)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define Kirchoff's voltage law.
2. The equivalent resistance of three resistors in series is  $90\ \Omega$ . Two of the resistors are  $15\ \Omega$  and  $13\ \Omega$ . What must be the resistance of the third resistor?
3. State superposition theorem.
4. State Thevenin theorem.
5. Distinguish between intrinsic and extrinsic semiconductors.
6. What are the advantages of MOSFET over FET?
7. What is an oscillator? What are the types of RC and LC oscillators?
8. What are the various parts of the 555 timer?
9. Mention the various stages in an op-amplifier.
10. What are the filters which are commonly used?

PART B — (5 × 16 = 80 marks)

11. (i) State and explain current division rule and voltage division rule. (10)
- (ii) For the circuit in figure (a) compute the current through resistor  $R_3$  if it is known that the voltage source supplies a current of 3A. (6)

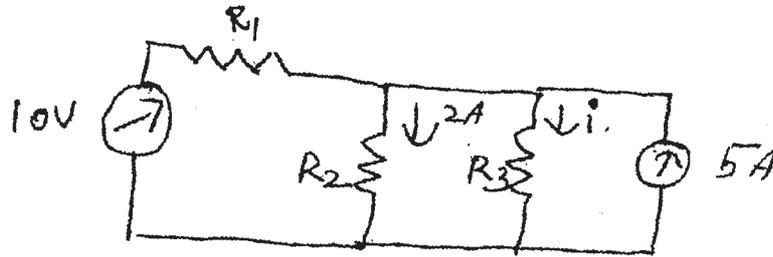


Figure (a)

12. (a) (i) State and explain the equivalent circuits in Norton's and maximum power transfer theorem. (10)
- (ii) Bring out the difference between single phase and three phase supply systems. (6)
- Or
- (b) (i) Briefly explain Delta - Wye conversion. (10)
- (ii) Write a note on concept of phasor diagrams. (6)
13. (a) (i) Explain the construction and working of SCR. (8)
- (ii) Explain the two types of extrinsic semiconductors. (8)

Or

- (b) (i) Explain the working principle of MOSFET with neat diagram. (10)
- (ii) Bring out the difference between FET and Bipolar transistor. (6)
14. (a) (i) Explain the working principle of full wave rectifier and obtain an expression for full wave rectifier output d.c voltage and current. (10)
- (ii) Bring out the advantages and disadvantages of full wave rectifier. (6)

Or

- (b) (i) Explain the working principles of JFET amplifier. (8)
- (ii) Explain the working principle of Hartley oscillator. (8)

15. (a) Bring out the principle and construction of

(i) Digital to Analog converter and

(ii) Non inverting amplifier.

(8 + 8)

Or

(b) Briefly explain :

(i) Subtractor and

(ii) Relaxation oscillator.

(8 + 8)