

**D 150**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2005.

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. State Kirchoff's current law and voltage law.
2. The resistance of two wires is 25 ohms when connected in series and 6 ohms when connected in parallel. Calculate the resistance of each wire.
3. State Norton's theorem.
4. Define power factor.
5. Distinguish junction diode from zener diode.
6. Define break over voltage of SCR.
7. List the advantages of zener regulator.
8. What are the essential parts of an oscillator?
9. What is operational amplifier?
10. Why integrators are preferred over differentiator.

PART B — (5 × 16 = 80 marks)

11. (i) Explain Kirchoff's current law and voltage law and also explain current division rule. (10)
- (ii) Find the effective resistance in the case of series and parallel resistors (say three resistors  $R_1$ ,  $R_2$  and  $R_3$  respectively). (6)

12. (a) (i) Explain delta-Wye transformation. (10)  
(ii) Compare single and three phase supply systems. (6)

Or

- (b) (i) State and explain superposition theorem. (5)  
(ii) State and explain Thevenin's theorem. (6)  
(iii) State and explain Norton theorem. (5)
13. (a) (i) Briefly explain the two types of extrinsic semiconductors. (10)  
(ii) Write a short note on zener regulator. (6)

Or

- (b) (i) Explain briefly Depletion mode MOSFET. (8)  
(ii) Describe briefly Enhancement mode MOSFET. (8)
14. (a) (i) Explain the principle operation of a Half-wave rectifier and derive an expression for its ripple factor and efficiency. (10)  
(ii) What is the role of capacitor filter in rectifying circuit? (6)

Or

- (b) (i) Bring out the characteristic of an LC oscillators. (10)  
(ii) Write a note on 555 timer. (6)
15. (a) Bring out principle and working of op-amp as  
(i) Summing amplifier. (6)  
(ii) Subtractor. (5)  
(iii) Digital to analog converter. (5)

Or

- (b) Briefly explain about :  
(i) Integrator. (8)  
(ii) Differentiator. (8)