Exam.Code:0906
Sub. Code: 33298

2015

B.E. (Mechanical Engineering)

Second Semester

ESC-X 05: Basics of Electrical and Electronics Engineering

Time allowed: 3 Hours Max. Marks: 50

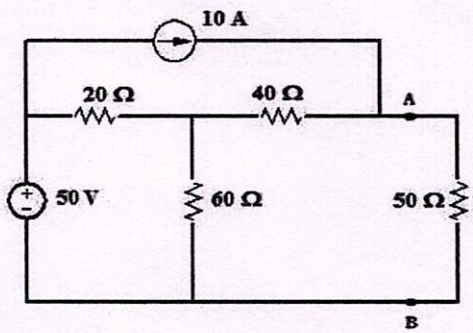
NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Part. Assume any missing data.

x-x-x

1. (a) Discuss difference between decimal and binary numbers.
   (b) Explain pn junction diode.
   (c) Write maximum power transfer theorem.
   (d) What are the three phases of power system?
   (e) What are FETs and their different types? (5x2)

PART-A

2. (a) Find current through 50Ω resistor using Norton Theorem.



   (b) What is electric network? What are different types of voltage and current sources? (5, 5)

3. Explain operation and characteristics of all types of transistors. (10)

4. (a) What are KVL and KCL? Explain with example.
   (b) Derive relationship for line and phase voltages and currents in star and delta connections. (5,5)

P.T.O.

PART-B

5. (a) How efficiency and voltage regulation are defined for transformer? Derive condition of maximum efficiency.

   (b) Explain operation, principal and applications of DC machines. (5,5)

6. (a) Discuss hysteresis curve of magnetic materials.

   (b) Compare electric and magnetic circuits. (5,5)

7. (a) What are universal gates? How other gates are realised by universal gates?

   (b) What are different sources of electric power? Differentiate between conventional and non-conventional resources. (5,5)

x-x-x