Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (Sem.–1/2)

BASIC ELECTRICAL AND ELECTRONICS ENGG.

Subject Code : EE-101 (2005-2010 Batch)

Paper ID : [A0126]

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C. have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.
4. Select atleast TWO questions from SECTION - B & C.

SECTION-A

1. Write briefly :

   i. What are the limitations of the Ohm's law?

   ii. State Kirchoff's voltage law.

   iii. What is resonance?

   iv. Write the voltage and current relations between line and phase values for star and delta connected three phase AC systems.

   v. Why series DC motors are always started with load?

   vi. Which type of measuring instrument is used for DC quantities?

   vii. Define Hall effect.

   viii. Draw the V-I characteristics of a PN junction diode and a zener diode.

   ix. Can inductor and capacitor be fabricated on IC? If no why?

   x. Draw an AND gate using NAND gate.

SECTION-B

2. Derive the relation for effect of temperature on the resistance of a conductor. Calculate the currents in each branch of the circuit having two bulbs of 40 W, 220 V and 60 W, 220 V and a 1000 W, 230 V heater, all connected in parallel to each other from a 230 V ac source.

3. Derive the relation for the average value of alternating current having sine wave. Explain the behaviour of the AC through RLC series circuit with the help of waveforms.

4. Explain the construction of a DC generator with neat sketch. Derive the EMF equation of a transformer.

5. Give classification of various types of instruments and discuss in detail the operation of an induction type energy meter.

SECTION-C

6. Explain the working principle of LVDT and a piezoelectric transducer.

7. Draw the basic characteristics of a BJT. Explain the operation of a single phase diode bridge rectifier with the help of circuit diagram and waveforms.

8. Give the pin diagram of IC741 and explain its various applications.

9. Convert the decimal number 258 in to binary, octal and hexadecimal number system. Explain the operation of a JK flip flop with the help of truth table.