

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (2008-2010 Batches) (Sem.-1,2)
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
Subject Code : EE-101
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 :

- a. What are the quantities on which reluctance of a linear magnetic circuit depends, also write their relationship?
- b. State Fleming's Left Hand rule.
- c. Draw phasor diagram to explain relationships between voltage and current in a star connected load.
- d. The *r.m.s.* value of sine wave is an equivalent Direct Current. True or False, give reasons.
- e. Write Electrical and mechanical analogous quantities.
- f. Write any four measuring instruments and classify them.
- g. Explain in brief Piezoelectric transducer.
- h. Draw V-I characteristic of SCR.
- i. Draw pin diagram of IC 741.
- j. Write equivalence between, any four-digit two Octal and hexadecimal numbers.

SECTION-B

2. A potential difference of 230V is applied to a copper field winding at 20° C and the current measured is 5A. What will be the mean temperature of the winding when current has fallen to 3 A, maintaining the applied voltage.
3. Explain principle of operation of transformer and draw its phasor diagram referred to secondary side, supplying leading power factor load.
4. An inductor having a resistance of 30 Ω and quality factor, Q_o of 15 at resonant frequency of 10 kHz is supplied from 200 $\angle 0^\circ$. Calculate :
 - i) value of series capacitance required to produce resonance
 - ii) inductance of the coil
 - iii) Q_o using the L/C ratio
 - iv) voltage across capacitor
5. Explain, induction type energy meter, in detail.

SECTION C

6. Explain the principle of capacitive transducer and its application.
7. What value of series resistance is required when 20W, 15V, 1000mA zener diodes are connected in series to obtain 20V regulated output from a 40Vd.c. source?
8. Explain IC 7408 AND gate.
9. What do you mean by truth table explain through Exclusive-NOR gate?