

Total No. of Questions : 09

Total No. of Pages : 02

B.Tech. (2011 Onwards) (Sem.-1,2)
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
Subject Code : BTEE-101
Paper ID : [A1104]

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 short notes on :

- (a) Find the rms value of periodic sine wave for complete cycle.
- (b) Explain self and mutually induced EMF with examples.
- (c) Explain regulation in a single phase transformer.
- (d) Explain commutator working in DC Motor.
- (e) Prove mathematically that total power consumed in balanced 3 phase load is constant.
- (f) Convert $(789)_{10}$ into hexadecimal.
- (g) Compare Digital multi meter in brief.
- (h) Explain Zener diode operation.
- (i) Draw the structure and energy band diagram of N-type extrinsic semiconductor material.
- (j) Explain RH thumb rule with application.

SECTION-B

2. (i) Convert star connected set of 3 resistors R into delta.
(ii) Define the following :
 - a. KVL
 - b. KCL,
 - c. Ohm's law
 - d. Unilateral Circuit Element
3. (i) Establish relation between Line & phase voltage in case of balanced 3 phase star connection.
(ii) Draw a neat sketch of three phase periodic balanced voltages waveforms on simultaneous time scale.
4. Explain principle, construction and working of 3 phase induction motor with suitable sketches.
5. Find the rms value of sine wave for complete cycle which is clamped to half its negative maximum value.

SECTION-C

6. Explain construction & working of :
 - (i) Strain Guage
 - (ii) Thermister
7. Explain principle of operation & characteristics of a PN junction diode.
8. Explain the principle of operation and the characteristics of BJT.
9. (i) Draw the truth tables of universal logic gates
(ii) Using Boolean techniques, simplify the following expression :
$$Y = (A+B+C) \cdot (A+B)$$