

Total No. of Pages : 02

Total No. of Questions : 09

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

l. 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.

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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). (A + B)

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