

B. Tech. (Sem. - 1st)
BASIC ELECTRICAL & ELECTRONICS ENGINEERING
SUBJECT CODE: BTEE - 101 (2011 Batch)
Paper ID: [A1104]

Time: 03 Hours

Maximum Marks: 60

Instruction to Candidates:

- 1) Section - A is **Compulsory**.
- 2) Attempt any **Five** questions from Section - B & C.
- 3) Selecting at least **Two** from each section - B & C.

Section - A**(2 Marks each)**

- Q1) a)** Apply Mesh Analysis to circuit shown in fig. 1 to find the power consumption by 3 ohm resistance.

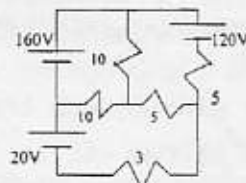


Fig. 1

- b) A voltage $v(t) = 170 \sin(377t + 10^\circ)$ is applied to a RL series circuit with $R = 2 \text{ ohm}$ and $L = 2.5 \text{ mH}$. Determine the variation of instantaneous power. Also find the average power delivered to circuit and power factor.
- c) What is a thermistor? Give its two applications.
- d) What is the difference between crystal diode and zener diode?
- e) Do the following operations:
 $(101010011.1101)_2 + (11010111.101)_2 = (\text{_____})_2$
 $(1684)_{16} - (4AE)_{16} = (\text{_____})_{16}$
 $(367)_8 * (12)_8 = (\text{_____})_8$
 $(10101011.011)_2 = (\text{_____})_{16}$
- f) What are advantages of three phase circuit over single phase circuit?
- g) Draw the schematic of D type flip flop using universal logic gates?
- h) What are different types of DC motors? Give an application of each type?
- i) Name the machine used for major industrial applications where controllable speed is required?
- j) Define current gain of common emitter configuration of bipolar junction transistor. What is the approximate range of current gain?