

1987

B.E. 2nd Semester Examination,

May-2013

ELECTRICAL TECHNOLOGY

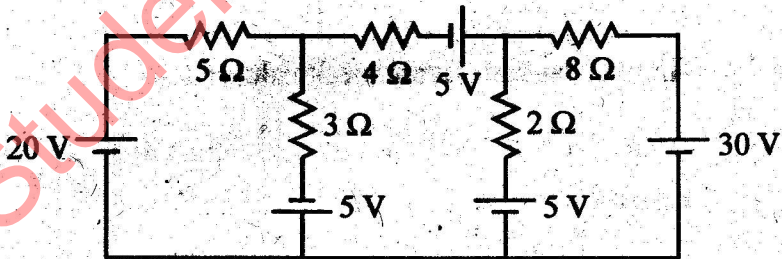
Paper-EE-101 E

Time allowed : 3 hours ] [ Maximum marks : 100

**Note :** (i) Attempt any five questions.

(ii) Use of non programmable calculator is allowed.

1. (a) Determine current in each branch of the network shown in fig. 1.



15

Fig. 1

- (b) Explain current division and voltage rule with a suitable example.

5

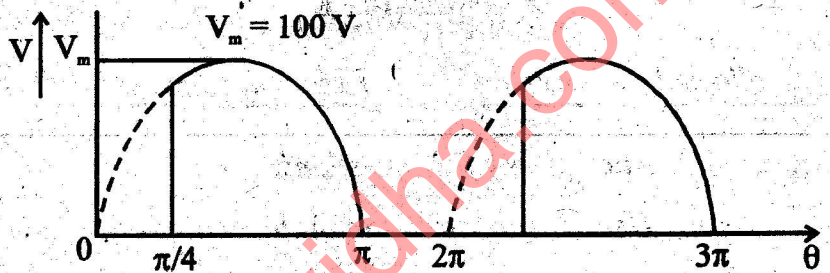
1987-P-4-Q-8 (13)

[P.T.O.]

(2)

1987

2. (a) Find average and effective value of voltage for sinusoidal waveform given below :



10

- (b) Explain the following terms :

(i) RMS Value

(ii) Phase angle

(iii) Instantaneous and peak value.

10

3. (a) Using Norton theorem calculate current in  $2 \Omega$  resistor in the network shown in fig. 3.

10

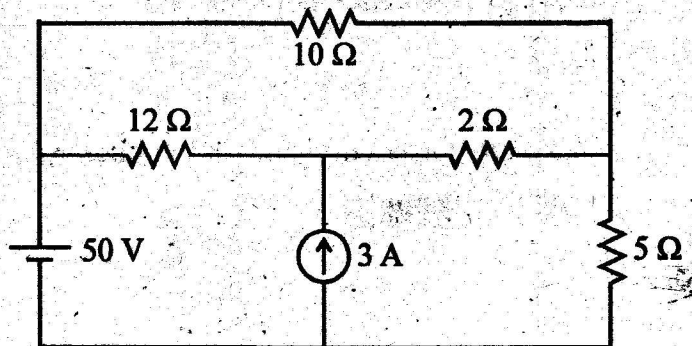


Fig. 3

1987

(3)

1987

- (b) State and explain maximum power transfer theorem. 10
4. (a) Define (i) Q-factor of a coil (ii) Power factor (iii) active and reactive power and their significance. 10
- (b) What is meant by resonance in series a.c. circuit? Also discuss effect of series resonance. 10
5. (a) Explain two wattmeter method of power measurement in three phase A.C. system at balanced load. 10
- (b) Establish relation between line voltage and phase voltage and between line current and phase current if the three phase load is connected - (i) In star fashion and (ii) In delta fashion. 10
6. (a) Explain working principle and constructional details of single phase transformer. 10
- (b) Derive the equation for voltage regulation of single phase transformer at capacitive load by drawing the phasor diagram. 10

1987

[P.T.O.]



7. Explain the comparison of working principle and construction of D.C. motor with Induction motor and synchronous motor. 20
8. Explain construction and working of:
- (i) Wattmeter
  - (ii) Energy meter. 20