Roll No. .....

Total Pages : 3

BT-I/D-19

31044

BASIC ELECTRICAL ENGINEERING

Paper : ES-101A

Opt. (II)

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *five* questions in all, selecting at least *one* question from each unit.

UNIT–I

1. (a) For the circuit shown in Fig. 1, find the current flowing through the 10 Ω resistor. 8

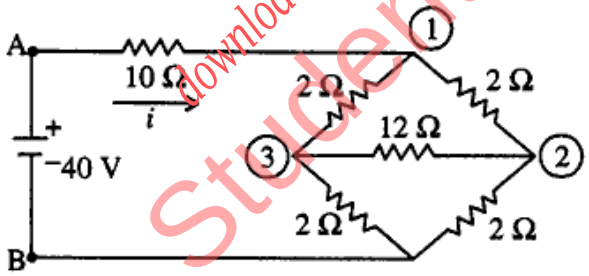

Fig. 1.

(b) Using Norton's theorem, find the voltage drop across 12 Ω resistance for the circuit shown in Fig. 2. 7

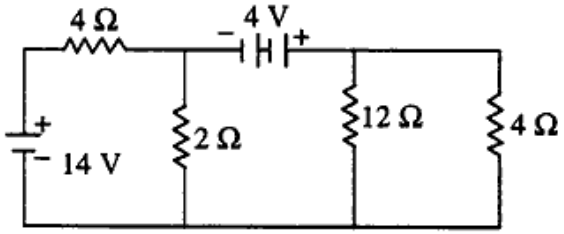

Fig. 2.

2. (a) For the circuit shown in Fig. 3, find the current in each branch by nodal method. 8

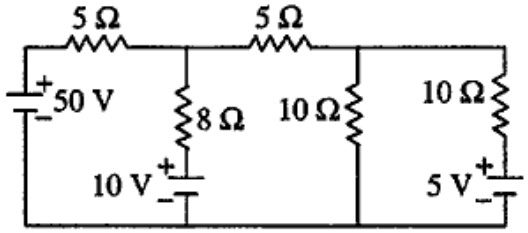

Fig. 3.

(b) For the circuit shown in Fig. 4, find out

(i) Thevenin equivalent across terminal A and B. 4

(ii) Current flowing through 6 Ω. 3

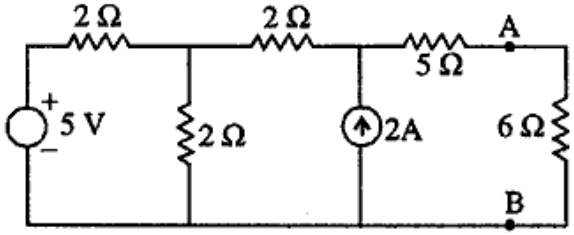

Fig. 4.

UNIT–II

3. (a) Find the average value and r.m.s. value for the waveform shown in Fig. 5. 4+4

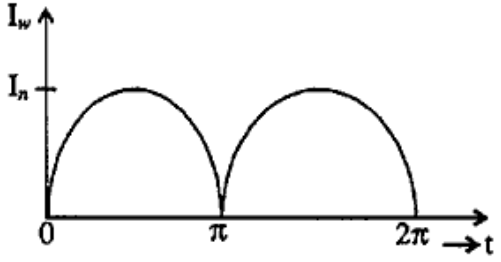

Fig. 5.

(b) For a series RLC circuit, find f_L and f_C. 7

4. (a) Find the difference of two voltages given as

$V_1 = 15 \sin(\omega t)$

$V_2 = 20 \sin(\omega t - 60°)$. 8

(b) Draw and explain resonance curve and bandwidth curve for parallel RLC resonance circuit. 7

UNIT–III

5. (a) Describe Three-phase star connection with diagrams. 8

(b) Draw and explain exact and approximate equivalent circuit of a single phase transformer. 7

6. (a) Describe the measurement of 3-phase power by 2-watt meter method for delta connection. 8

(b) Explain OC and SC tests in detail. 7

UNIT–IV

7. (a) Explain the construction and working of a three-phase induction motor. 8

(b) Describe the working principle of Switch Fuse Unit (SFU). 7

8. (a) Explain the construction and working of a dc machine with commutator action. 8

(b) Differentiate between MCB, ELCB and MCCB. 7