Roll No.:.....

National Institute of Technology, Delhi

Name of the Examination: B. Tech.

Branch : **EEE and ECE.** **Semester** : **1st**

Title of the Course : **Introduction to Electrical & Electronics Engineering** **Course Code** : **EEB100**

Time: 2 Hours **Maximum Marks: 25**

Note : 1. Answer all the questions.

2. Do not write anything on the question paper except Roll number

---

1. Evaluate R_{ad} of the network shown in Fig.1. **[4]**

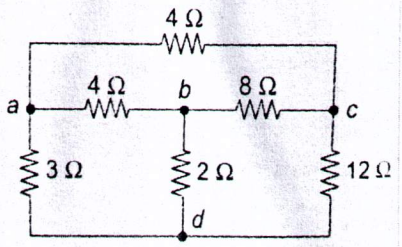

Fig. 1

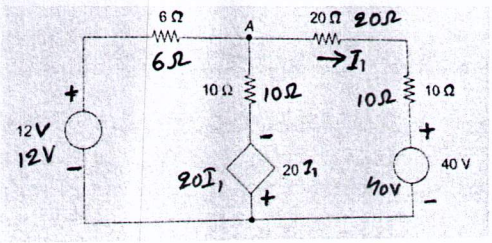

Fig. 2

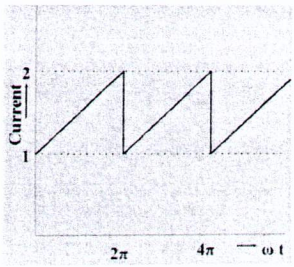

Fig. 3

2. Find the voltage across the 10Ω resistance in the circuit shown in Fig. 2 using nodal analysis and mesh analysis **[4]**

3. Three air cored coils A, B, and C are connected in series. When a current of 3A is passed through the circuit, the voltage drops are respectively 12,6, and 9 V on direct current and 15,9, and 12 V on alternating current. Find (a) resistance and reactance of each coil, (b) power dissipated by each coil when ac current flows through the circuit, (c) power factor and voltage across the whole circuit. **[4]**

4. Calculate Average value, r.m.s value, form factor and peak factor of the wave shown in Fig. 3. **[4]**

5. **(a)** Convert 53.625_{10} to Octal and Hexa decimal number **[2]**
   (b) Calculate $(-53)_{10}$-$(-33)_{10}$ using 1's and 2's Complement methods **[2]**

6. **(a)** How many BCD corrections are required in the following BCD addition. $(0101\ 1001\ 0101)_{BCD} + (0101\ 01110110)_{BCD}$ **[2]**
   (b) Calculate $679.6 - 885.9$ using 1's complement BCD subtraction and 10's complement BCD subtraction method **[3]**