Roll No.:.....

National Institute of Technology, Delhi

Name of the Examination: B.Tech.

Branch	**: EEE, ECE**	**Semester**	**: 1st**
Title of the Course	**: IEEE**	**Course Code**	**: EEB 100**

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

Note : 1. All the questions are compulsory. Make suitable assumptions wherever required.

2. All the symbols have their usual meaning.

Q1. In the circuit of fig. 1, find the power loss in the 1 Ω resistor by using Thevenin's theorem. **5 Marks**

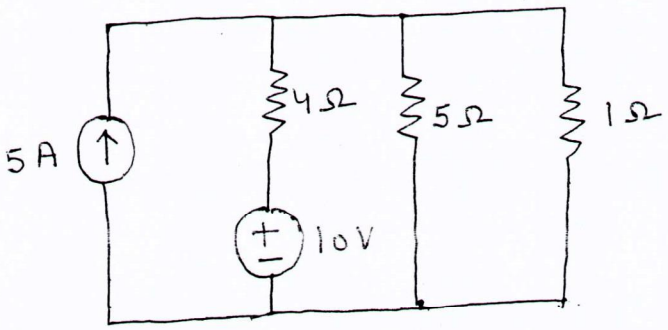

Fig. 1

Q2. In the circuit of fig. 2, find the current in 10 Ω resistor by Norton's theorem. **5 Marks**

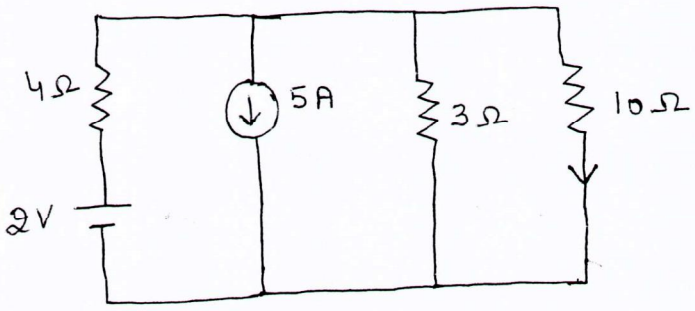

Fig. 2

Q3. a) Derive the condition for maximum power transfer across a load resistance. What is the efficiency under maximum power transfer condition? **3 Marks**

b) Calculate the value of load resistance R in the circuit of fig. 3, so that maximum power is transferred to the load. **3 Marks**

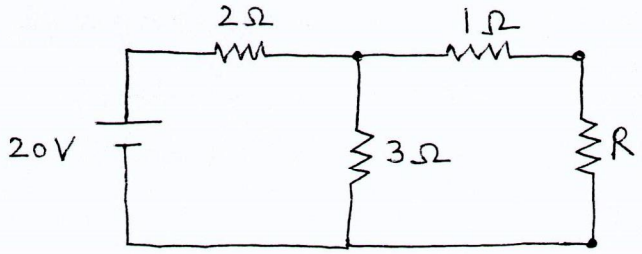

Fig. 3

Q4. For the network shown in fig. 4, calculate the equivalent resistance between nodes A and B. **4 Marks**

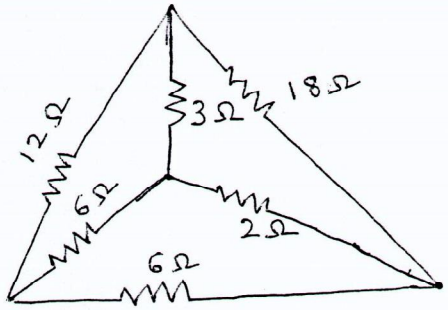

Fig. 4

Q5. Determine the current flowing in the 8 Ω resistor in the circuit shown in fig. 5 by applying Superposition theorem. **5 Marks**

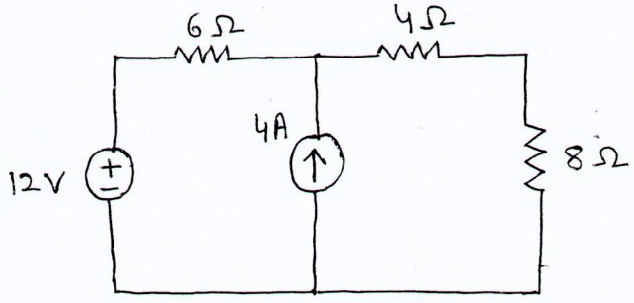

Fig 5