Mid Term Examination

Paper Code: ICT-103 (1st Sem) **Subject: Electrical Science**

Time: 1:30 hrs **Max Marks: 30**

Note: Attempt Q.No. 1 Which is compulsory and any two question from remaining.

Q.No.1

a) Explain voltage and current divider rule with suitable example? Find the values of different voltages V_1, V_2 & V_3 that can be obtained from a 12-V battery Fig.1. (4)

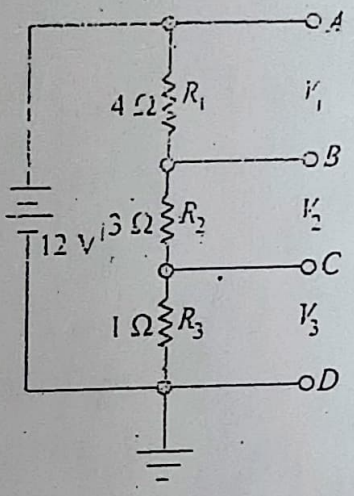

Fig.1

b) In given circuit Fig. 2, calculate the values of (i) V_{AF} (ii) V_{EA} and (iii) V_{FB}. (3)

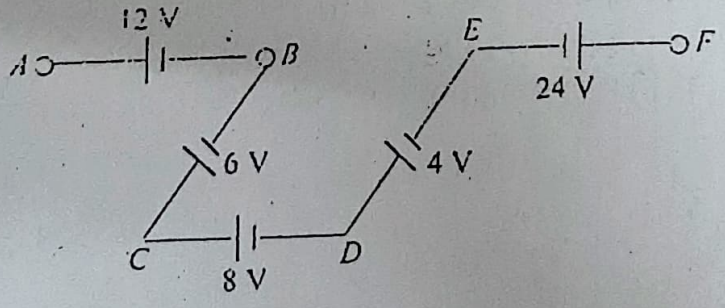

Fig.2

c) Define Ohm's law, Kirchhoff's law with suitable example? (3)

Q.No.2

a) State and explain Superposition theorem? Using Superposition theorem, find the current through the 40 ohm resistor of the circuit shown in Fig.3. All the resistances are in ohms.(8)

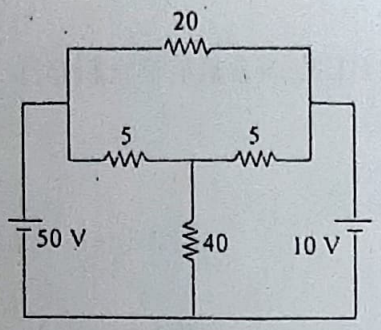

Fig.3

b) Explain the source transformation with suitable example? (2)

Q.No. 3

a) Derive the relationship to express three star connected resistances to equivalent delta? (5)

b) Convert the circuit shown in Fig. 4, to a single voltage source in series with a single resistor. All the resistances are in ohm. (5)

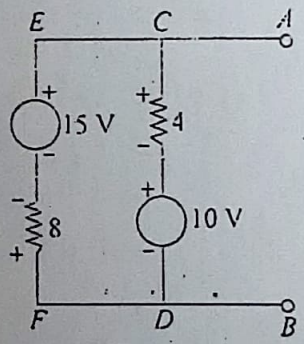

Fig.4

Q.No.4

a) State and Explain Maximum Power Transfer Theorem? (4)

b) For the circuit shown below in Fig.5, what will be the value of R_L to get the maximum power ? What is the maximum power delivered to the load ? (6)

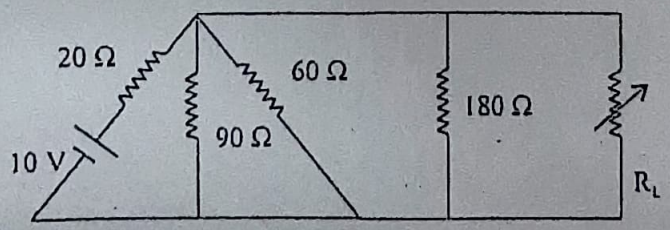

Fig.5