DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
UNIVERSITY OF BARISAL
Final EXAMINATION
Course Title: Introduction to Electrical Engineering
Course Code: EEE-1205
1st Year 2nd Semester
Session: 2022-23 (Admission: 2022-23)

Time: 3 hours   **Marks: 60**

Answer any five Questions from the followings.

1. a) Discuss the voltage and current effect on resistors in parallel and resistors in series. [4]

   b) Explain different types of resistors. [4]

   c) The resistivity of a ferric-chromium-aluminium alloy is 51 108 Ω-m. A sheet of the material is 15 [4] cm long, 6 cm wide and 0.014 cm thick. Determine resistance between (a) opposite ends and (b) opposite sides.

2. a) Define temperature coefficient of resistance. Find values of temperature coefficient of resistance at [6] different temperature.

   b) What are the limitations of Ohm's law? [2]

   c) Three resistors are connected in series across a 12-V battery. The first resistor has a value of 1 Ω, [4] second has a voltage drop of 4 V and the third has a power dissipation of 12 W. Calculate the value of the circuit current.

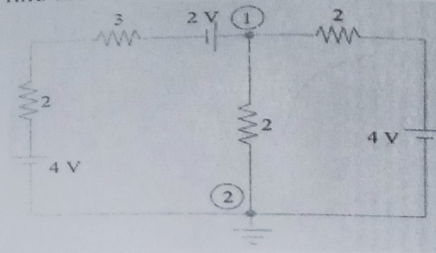3. a) Find the values of R and Vs in the following figure. Also find the power supplied by the source. [6]
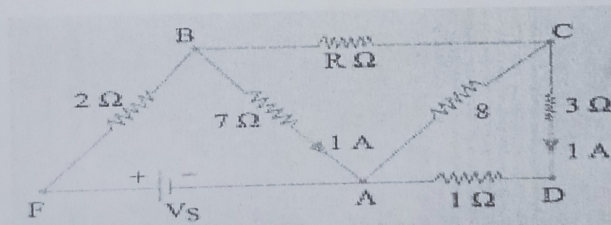
   b) Determine the current x in the 4-Ω resistance of the circuit below. [6]
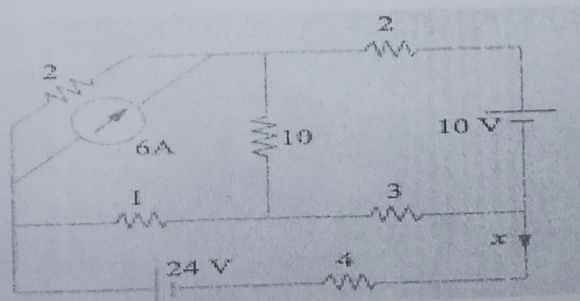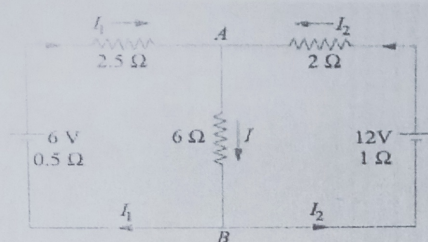

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4. a) Explain Nodal analysis with appropriate figures. [8]

b) Using Node voltage method, find the current in the 3Ω resistance for the following network. [4]
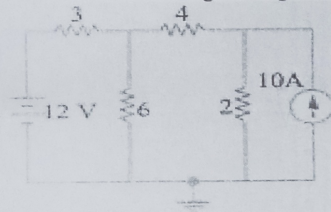

5. a) Explain superposition theorem. [5]

b) Find the different currents flowing in the branches and voltage across 6-ohm resistor. [7]


6. a) Define Thevenin theorem. Explain how to thevenize a circuit with appropriate figures. [6]

b) Using Thevenin theorem, calculate the current flowing through the 4 Ω resistor [6]

7. a) Explain Delta/Star and Star/Delta Transformation with appropriate figures and derive required equations for each conversions. [7]

b) Use delta-star conversion to find resistance between terminals 'AB'. [5]
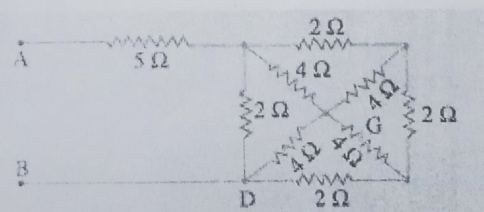
8. a) Define the RMS value of an alternating current. Find the RMS value of alternating current for full cycle. [5]

b) Explain the form factor. What is an average value of alternating emf for a complete cycle? [4]

c) Distinguish between series resonant and parallel resonant circuits. [3]