JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- MARCH-2023

COURSE CODE (CREDITS): 18B11EC211 (4) MAX. MARKS: 15

COURSE NAME: Electrical Science

COURSE INSTRUCTORS: EMP, SRU, PRG, SWT MAX. TIME: 1 Hour

Note: *All questions are compulsory. Marks are indicated against each question in square brackets.*

Q1 (a). Define Kirchhoff's current law (KCL) and Kirchhoff's voltage law (KVL). [CO-1, 2M]

(b). Determine the power supplied by each elements in the circuit of Fig.1 [CO-1, 3M]

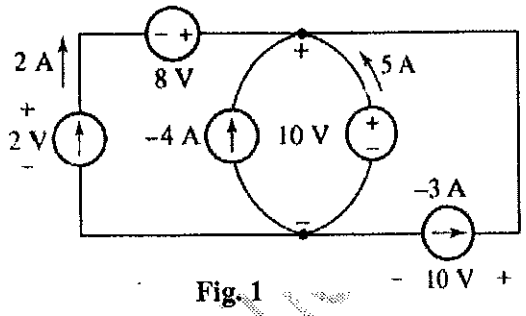

Fig. 1

Q2. In the given circuit, i_x is determined to be **1.5A**, and the **9V** source supplies a current of 7.6A. Determine the value of resistor R_A and v_x. [CO-2, 2M]

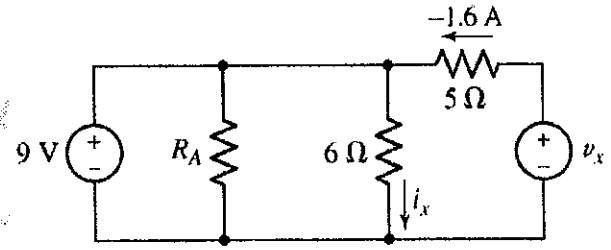

Fig. 2

Q3. Count the number of branches and nodes in the given circuit. Employing resistance combination and current division as appropriate, determine values for i_1 and i_2. [CO-2, 2M]

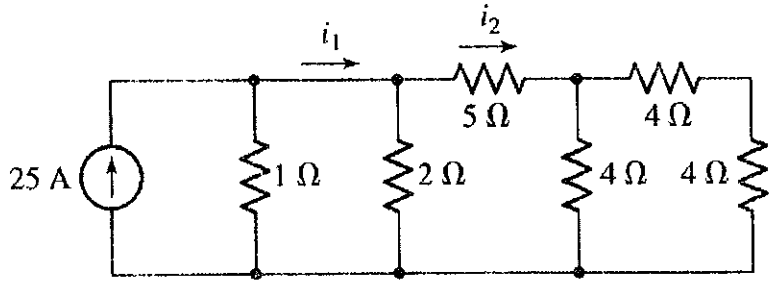

Fig. 3

[P.T.O]

Q4 (a). Determine the voltages v_1 and v_2 in the circuit shown in Fig.4 below. [CO-2, 2M]

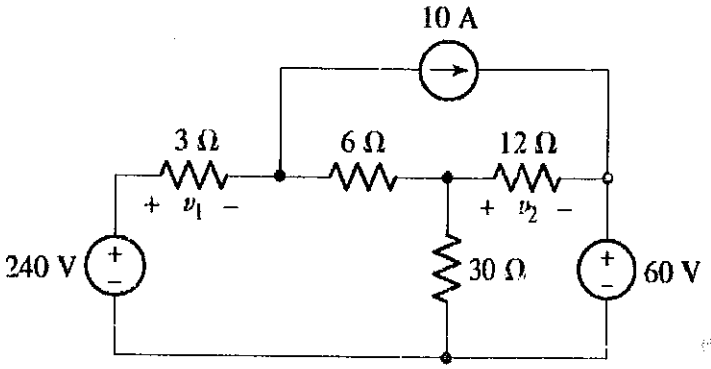

Fig. 4

(b). Determine the voltage v_x, and the power supplied by the 1 A source in the circuit of the Fig.5 shown below. [CO-2, 3M]

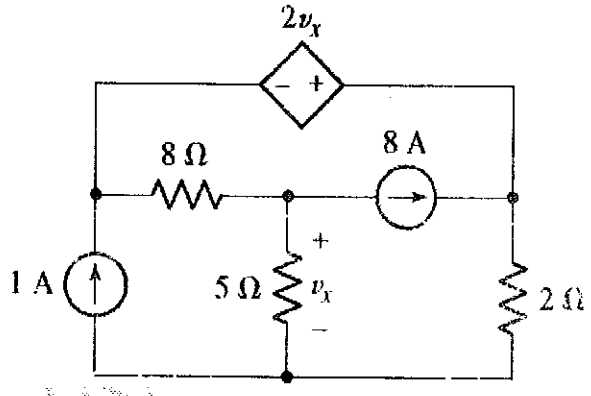

Fig. 5