

JAYPEE INSTITUTE OF INFORMATION TECHNOLOGY
Electronics and Communication Engineering
Electrical Science-I (15B11EC111)
Tutorial Sheet: 2

Q.1[CO1] Find the power supplied by the VCCS in Fig. 1.1.

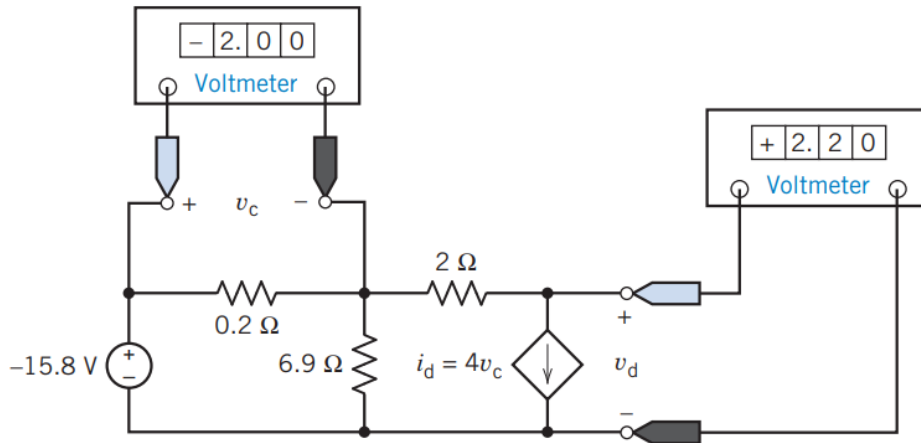


Fig. 1.1

Q.2[CO1] A current source and a voltage source are connected in parallel with a resistor as shown in Fig. 1.2. All of the elements connected in parallel have the same voltage v_s in this circuit. Suppose that $v_s = 15$ V, $i_s = 3$ A, and $R = 5\Omega$.

(a) Calculate the current i in the resistor and the power absorbed by the resistor. (b) Change the current source current to $i_s = 5$ A and recalculate the current i in the resistor and the power absorbed by the resistor.

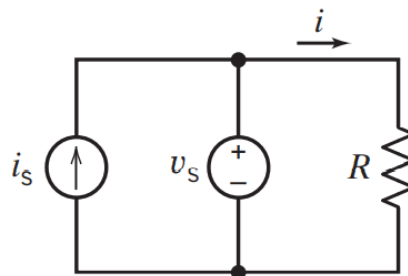


Fig. 1.2

Q.3[CO1] Using Kirchhoff's laws, determine the values of i_2 , i_4 , v_2 , v_3 , and v_6 in Fig. 1.3.

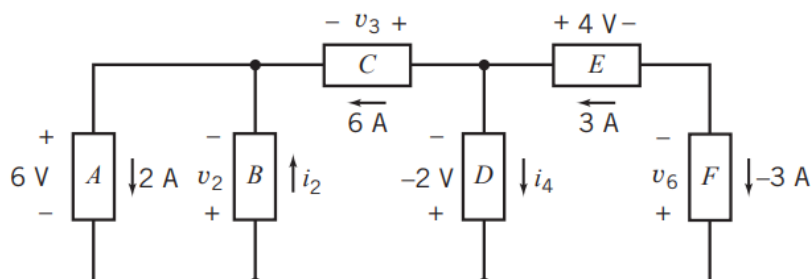


Fig. 1.3

Q.4[CO1] Determine the voltage measured by the voltmeter in the circuit shown in Fig. 1.4.

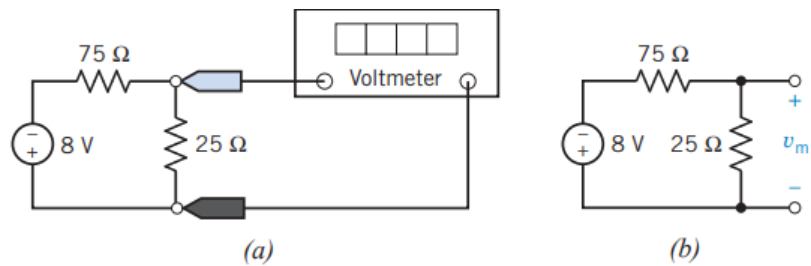


Fig. 1.4

Q.5[CO1] Consider the two similar voltage divider circuits shown in Fig. 1.5. Use voltage division to determine the values of the voltage v_2 in Fig. 1.5(a) and the voltage v_b in Fig. 1.5(b).

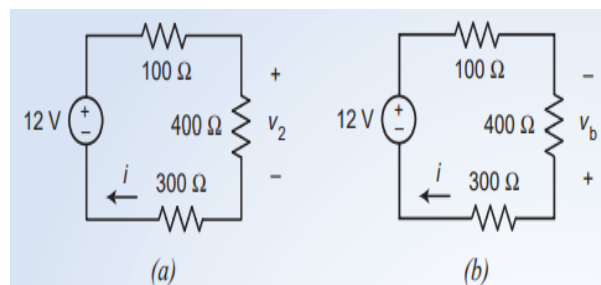


Fig. 1.5

Q.6[CO1] Use current division to determine the currents i_1 , i_2 , i_3 , and i_4 in the circuit shown in Fig. 1.6.

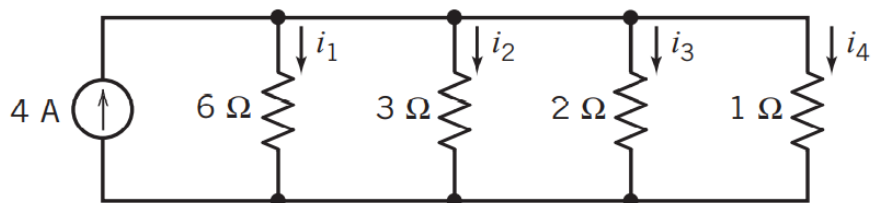


Fig. 1.6