

Q1 – The Circuit in Fig. 1 is to control the speed of a motor such that the motor draws currents 5 A, 3 A and 1 A when the switch is at high, medium, and low position, respectively. The motor can be modeled as a load resistance of $20\text{ m}\Omega$. Determine the series dropping resistances R_1 , R_2 and R_3 .

Q2 – Find the equivalent resistance between terminals a and b of network shown in Fig. 2.

Q3 – A coil is connected to a constant d.c. supply of 100 V. At start, when it was at the room temperature of 25°C , it drew a current of 13 A. After sometime, its temperature was 70°C and the current reduced to 8.5 A. Find the current it will draw when its temperature increase further to 80°C . Also, find the temperature coefficient of resistance of the coil material at 25°C .

Q4 – Determine the voltage V and the current I for the network in Fig. 3

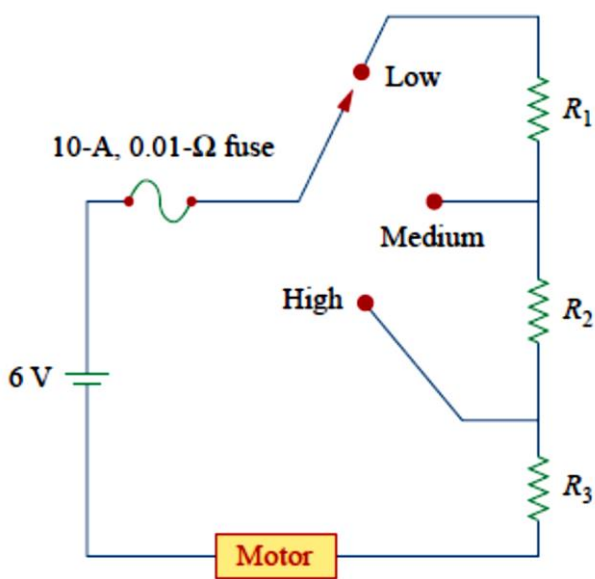


Fig. 1

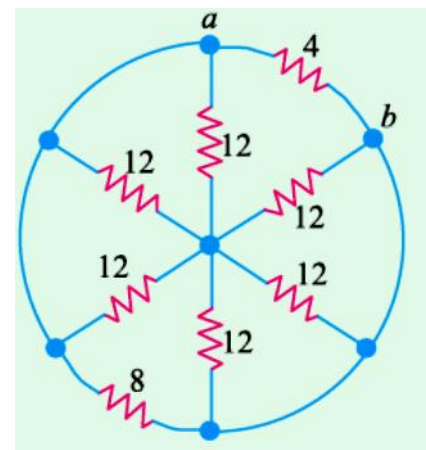


Fig. 2

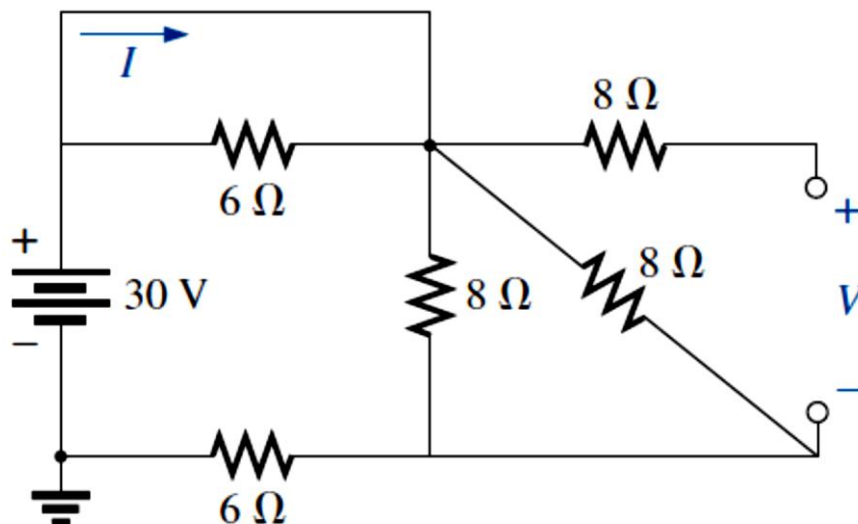


Fig. 3