SHEET 2

Series and Parallel DC Circuits

1. Identify all the loops and all the meshes for the circuit shown in Fig. 1. Also, specify which components are in series and which are in parallel.

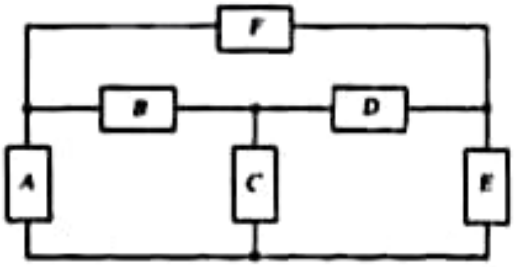

Fig 1

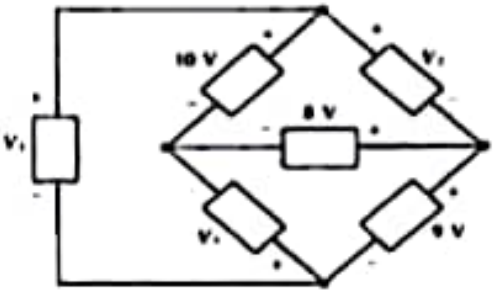

Fig 2

2. Find the unknown voltages in the circuit shown in Fig. 2. Find V_i first
3. A string of Christmas tree lights consists of eight 6-W, 15-V bulbs connected in series. What current flows when the string is plugged into a 120-V outlet, and what is the hot resistance of each bulb?
4. A 90-V source is in series with five resistors having resistances of 4, 5, 6, 7, and 8 Ω. Find the voltage across the 6-R resistor.
5. Use voltage division to determine the voltages V4 and V5 in the circuit shown in Fig. 3

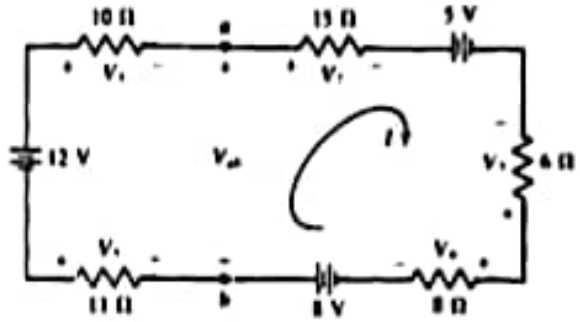

Fig 3

6. Calculate I and Vab in the circuit of Fig. 4

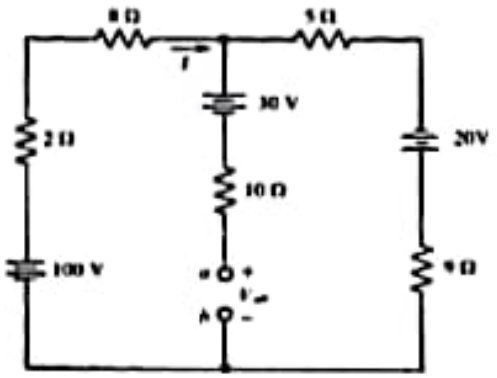

Fig 4

7. Find the total conductance and resistance of four parallel resistors having resistances of 1, 0.5, 0.25, and 0.125 Ω.

8. Find the total resistance R, of the resistor ladder network shown in Fig. 5 and 6.

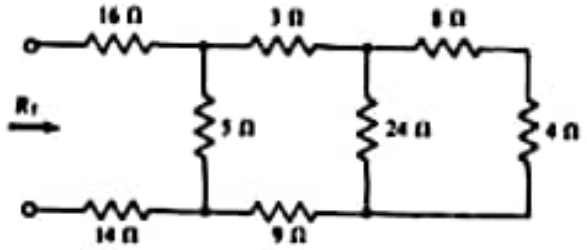

Fig 5

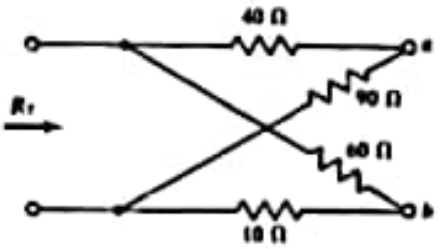

Fig 6

9. Use current division twice to find I, in the circuit shown in Fig. 7

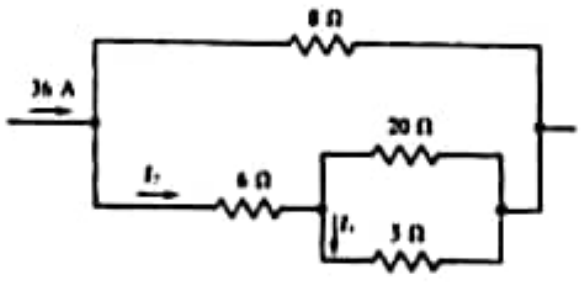

Fig 7

End of sheet 2