Date : ...../...../.....

1) $q = 5\,mC = 5 \times 10^{-3}\,C$

$V_1 = -7V, \quad V_2 = 17V$

$\therefore W = q(V_2 - V_1)$

$= 5 \times 10^{-3} \cdot (17 + 7)$

$= 0.12\,J$

2) $I = 1 + 3 = 4A$

$P_1 = -5 \times 2 = -10\,W$ (supplies)

$P_2 = 5 \times 1 = 5\,W$ (absorbs)

$P_3 = 2 \times 1 = 2W$ (absorbs)

$P_4 = 4 \times 3 = 12W$ (absorbs)

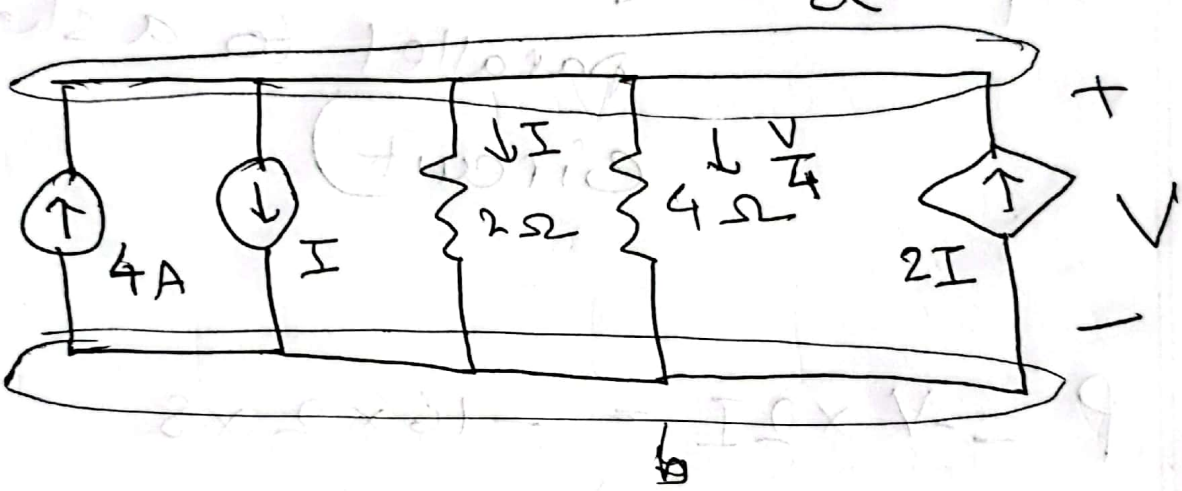
Protiva

$P_5 = -2 \times 3 = -6W$ (supplies)

$P_6 = -0.25I \times 3$

$= -0.25 \times 4 \times 3 = -3W$ (supplies)

3)



There are 2 nodes

$V = 2I$

Applying KCL to node a we get,

$-4 + I + I + \frac{V}{4} - 2I = 0$

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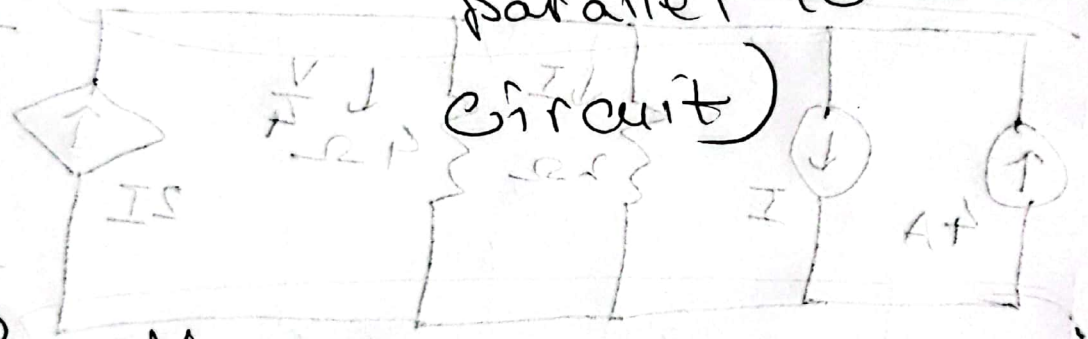
Or, $-4 + \frac{V}{4} = 0$

or, $V = 16\,V$

$\therefore I = \frac{V}{2} = 8\,A$

$I_1 = 0\,A$ (As I_1 is the current parallel to a short circuit)



$P = -V \times 2I = -16 \times 2 \times 8$

$= -256\,W$ (supplied)