Question number: 1

Resistor : 4Ω

Resistor : 2Ω

Right source - 8V

Solve :- Req = 4 + 2 = 6Ω

$32 - 4I - 8 - 2I = 0$

$24 - 6I = 0$

$I = 4A$

$V1 = 4\Omega \times 4A = 16V$

$V2 = 2\Omega \times 4A = 8V$

= $V1 = 16V$, $V2 = 8V$

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Question 2

10 Ω resistor → V_x

5 Ω resistor → V_o

source = 70 V

Dependent source = $2V_x$

loop current I

$V_x = 10I$

$V_o = 5I$

Evening

KVL $\quad 70 - 10I - 2V_x - 5I = 0$

$70 - 35I = 0$

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$I = 2A$

$V_x = 10 \times 2 = 20V$

$V_o = 5 \times 2 = 10V$

$V_x = 20V$, $V_o = 10V$

Question 8

$10\Omega + 6\Omega = 16\Omega$

$$R = \frac{12 \times 16}{12 + 16} = \frac{192}{28} = 6.86\Omega$$

$6.86 + 8 = 14.86\Omega$

$$R = \frac{6 \times 14.86}{6 + 14.86} = 4.27\Omega$$

$4 + 4.27 = 8.27\Omega$

3Ω

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$R_{eq} = 8.27 + 3 = 11.27\Omega$

$R_{eq} = 11.27\Omega$

Question 4

$50\mu F + 70\mu F = 120\mu F$

$$\frac{1}{C} = \frac{1}{60} + \frac{1}{20}$$

$C = 40\mu F$

$40 + 20 = 60\mu F$

$$\frac{1}{C_{eq}} = \frac{1}{20} + \frac{1}{60}$$

$C_{eq} = 40\mu F$

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Question 5 -

$C_{eq} = 20 + 30 = 50\,\mu F$

$Q = C_{eq} \times V = 50 \times 150 = 7500\,\mu C$

$V_1 = \frac{Q}{40} = 187.5\,V$

$V_2 = \frac{Q}{60} = 125\,V$

$V_3 = \frac{Q}{20} = 375\,V$

$V_4 = \frac{Q}{30} = 250\,V$

$V_1 = 187.5\,V$, $V_3 = 375\,V$

$V_2 = 125\,V$, $V_4 = 250\,V$

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Question 6

$4 + 20 = 24\,H$

$8 + 10 = 18\,H$

$L_{eq} = 24 + 7 + 12 + 18$

$L_{eq} = 61\,H$

Question 7

$$\frac{1}{L} = \frac{1}{50} + \frac{1}{40} + \frac{1}{30} + \frac{1}{20}$$

THURSDAY 5
1 ربيع الاول

$20 + 100 + 40 = 160\,mH$

$L_{eq} = 167.3\,mH$

$L_{eq} = 167.3\,mH$