

ΕΝΔΕΙΚΤΙΚΕΣ ΑΠΑΝΤΗΣΕΙΣ

Θέμα 4^ο

4.1

$$C_{2,3} = \frac{C_2 * C_3}{C_2 + C_3} = \frac{6 * 3}{6 + 3} = \frac{18}{9} = 2\text{mF}$$

$$C_{1,2,3} = C_1 + C_{2,3} = 2 + 2 = 4\text{mF}$$

$$C_{o\lambda} = \frac{C_{1,2,3} * C_4}{C_{1,2,3} + C_4} = \frac{4 * 4}{4 + 4} = \frac{16}{8} = 2\text{mF}$$

4.2

$$C_{o\lambda} = \frac{Q_{o\lambda}}{V} \rightarrow Q_{o\lambda} = C_{o\lambda} * V \rightarrow Q_{o\lambda} = 2\text{mF} * 20 = 40\text{mC}$$

$$Q_4 = Q_{o\lambda} \rightarrow C_4 = \frac{Q_4}{V_4} \rightarrow V_4 = \frac{Q_4}{C_4} = \frac{40\text{mC}}{4\text{mF}} = 10\text{V}$$

4.3

$$V_1 + V_4 = V \rightarrow V_1 = V - V_4 = 20\text{V} - 10\text{V} = 10\text{V}$$