

MEEG 3013 Test 1c

Answers:

1.
$$\delta_{AT} + \delta_{BT} - b = \delta_{AP} + \delta_{BP}$$

$$\Delta T = 122.4^\circ F$$

2.
$$\phi = \frac{TL}{JG}$$

$$\begin{aligned} \phi_A = & \frac{200(12)(12)}{(\pi/2)(0.75)^4(11.2 \times 10^6)} + \frac{200(12)(6)}{(\pi/2)(1.25)^4(11.2 \times 10^6)} \\ & + \frac{200(12)(18)}{(\pi/2)[(1.25)^4 - (1)^4](11.2 \times 10^6)} \\ & + \frac{1500(12)(6)}{(\pi/2)(1.25)^4(11.2 \times 10^6)} + \frac{1500(12)(18)}{(\pi/2)[(1.25)^4 - (1)^4](11.2 \times 10^6)} \end{aligned}$$

$$\phi_A = 22.503854 \times 10^{-3} \text{ rad} = 1.28938^\circ$$

$$\phi_A = 1.289^\circ$$

3. A. (c)
B. (f)
C. (b)

4. (See test.)