Solution: For microwave, as

$$c = f\lambda \qquad Where\ f\ is\ the\ frequency.$$

$$\Rightarrow \lambda = \frac{c}{f} = \frac{3\times10^{8}}{10\times10^{6}} = 30\,m.$$

Given, the distance between the coherent sources is d = 15m,

Phase difference $\phi = \frac{2\pi}{\lambda}(d\sin\theta) = \pi\sin\theta$

So, $I_\theta = I_0 \cos^2(\phi/2) = I_0 \cos^2 \frac{\pi\sin\theta}{2}$

(a) $\theta = 0^0$, $\sin\theta = 0$

$\Rightarrow I = I_0 \cos^2 \frac{\pi\sin 0}{2} = I_0 \cos^2 0 = I_0$

(b) $\theta = 30^0 \Rightarrow I = I_0/2$

(c) $\theta = 90^0 \Rightarrow I = 0$