18 Three polarisers are held in line one after the other such that the transmission axis of the last polariser is perpendicular to that of the first.

Unpolarised light of intensity $40\ \text{W m}^{-2}$ is incident normally on the first polariser. The intensity of the emergent light after passing through all three polarisers is $2.5\ \text{W m}^{-2}$.

What is the angle between the transmission axes of the first and the second polariser?
(Hint: $\sin 2\theta = 2\sin\theta\cos\theta$)

A 7.2° **B** 15.0° **C** 22.5° **D** 53.5°