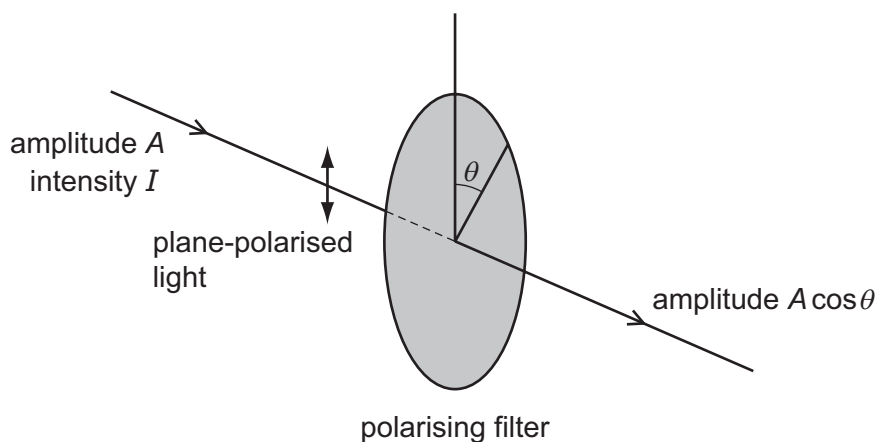**30** When plane-polarised light of amplitude A is passed through a polarising filter as shown, the amplitude of the light emerging is $A\cos\theta$.

amplitude A
intensity I

plane-polarised
light

θ

amplitude $A\cos\theta$

polarising filter

The intensity of the initial beam is I.

What is the intensity of the emerging light when θ is 60.0°?

A $0.250\,I$ **B** $0.500\,I$ **C** $0.750\,I$ **D** $0.866\,I$

Space for working