

**Support Worksheet – Topic 4, Worksheet 5**

- 1 The angular separation of two objects is  $6.2 \times 10^{-3}$  rad . The diameter of the human pupil of the eye is 3.0 mm and the objects are viewed in light of wavelength 480 nm. Determine whether the two objects are resolved by the eye. [2]
- 2 State what is meant by **polarisation** of light. [1]
- 3 State two ways by which light may be polarised. [2]
- 4 You are standing outdoors on a bright day next to a calm lake. You are given a polariser of unknown transmission axis. Describe how you might determine the orientation of the transmission axis. [2]
- 5 Unpolarised light is transmitted through two polarisers. The angle between the transmission axes of the two polarisers is  $60^\circ$ . Determine the fraction of the original intensity of light that is transmitted through the second polariser. [2]
- 6 Unpolarised light is incident on the flat surface of a transparent plastic from air making an angle of incidence of  $52^\circ$ . The reflected and the refracted rays make a right angle between them. Calculate the refractive index of the plastic. [2]
- 7 A sugar solution is said to be optically active. Explain what this means. [1]