

FORM 4

CHAPTER 6

Paper 1

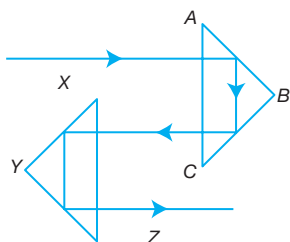
- 1 D 2 B 3 B 4 D 5 B 6 D
7 B 8 A 9 A 10 D 11 C 12 A

Paper 2

Structured Question

- 1 (a) $i = 45^\circ$
 (b) $c = 40.5^\circ$
 (c) (i) Full internal reflection occurs.
 (ii) The light in the glass goes into the air.
 Heading angle $45^\circ \geq$ Critical angle 40.5°

(d) (i)



(ii) Prismatic binoculars

- 2 (a) Refraction of light: *A, C*
 Reflection of light: *B*
 Total internal reflection: *D, E*
 (b) The refractive index of the air layer closer to the hot road surface decreases.
 Light from the sky is refracted away from the normal line when it travels to the road surface. When the angle of incidence is greater than the critical angle, total internal reflection occurs. Light travels away from the surface of the road. Mirage is visible.
 (c) Refractive index = $\frac{\text{Real depth}}{\text{Apparent depth}}$