

Multiple Choice Answers

Q20: C

Q21: C

6(a)	ray from top of object to tip of image
	line labelled L drawn perpendicular to principal axis at its intersection with previous ray
6(b)	ray from top of O parallel to principal axis to lens AND ray from lens to tip of I OR ray from tip of I parallel to principal axis to lens AND ray from lens to top of O
	2.1 cm
6(c)	virtual
	upright

5(a)(i)	42°
	$n = 1 / \sin c$ OR $c = \sin^{-1} (1 / n)$ OR $c = \sin^{-1} (1 / 1.5)$
5(a)(ii)	ray continues along radius of semicircle within plastic
	ray reflected inside plastic on straight edge, with angle of reflection = angle of incidence AND emerges from block along the normal
5(b)(i)	(focal length =) 7.2 cm
5(b)(ii)	two correct rays from: - ray from top of object through centre of lens - ray from top of object (that would pass through F on LHS of lens) refracted parallel to the principal axis - ray from top of object to lens, parallel to principal axis, refracted through F (same distance on right of lens as F marked on left of lens)
	Two rays correctly extended back to intersect to left of object <u>and</u> line from principal axis to top of image labelled I.
5(c)	diverging lens in front of eye lens
	rays meeting on the retina

5(a)(i)	straight line from clock to mirror AND from mirror to eye with correct arrows
	Angle of incidence = angle of reflection
5(a)(ii)	Correct position of image
5(a)(iii)	Virtual (no mark) And Cannot be projected on a screen / light doesn't pass through image / AW

5(a)(iv)	
5(b)(i)	(monochromatic light) is light of a single frequency
5(b)(ii)	$5.4 \times 10^{14} \text{ Hz}$
	(speed of light =) $3 \times 10^8 \text{ (m / s)}$
	$(f =) v / \lambda$ in any form OR $3.0 \times 10^8 / 5.6 \times 10^{-7}$