Question Number	Answer	Mark
16(a)	Interference/superposition takes place **(1)** Destructive (interference) occurs when (the two reflective) waves meet in antiphase (and these wavelengths are missing) **(1)** If the path difference is equal to (n + 1/2) λ [Allow If $2d = (n + 1/2)\lambda$] **(1)**	**3**
16(b)	Use of path difference = $2d$ **(1)** Use of minimum occurs when path difference = $\lambda / 2$ **(1)** Use of $n = c/v$ (with $v = f\lambda$) **(1)** wavelength in air = 6.0×10^{-7} m **(1)** Example of calculation Path difference = $2 \times 6.5 \times 10^{-8}$ m = 1.3×10^{-7} m wavelength in coating = $2 \times 1.3 \times 10^{-7}$ m = 2.6×10^{-7} m wavelength in air = 2.6×10^{-7} m × 2.3 = 5.98×10^{-7} m = 598 nm	**4**
16(c)	Use of $I = P/A$ **(1)** Use of $P = E/t$ **(1)** Use of Efficiency = useful power output/power input **(1)** Efficiency = 0.31 **Or** 31% **(1)** Example of calculation Power incident on solar array = 1.1 kW m^{-2} × 8.7 m^2 × cos 60 = 4.785 kW Power output from solar array = 5.4×10^6 J ÷ 3600 s = 1.5 kW Efficiency = 1.5 kW ÷ 4.785 kW = 0.313	**4**
	Total for question 16	**11**