

$$3) \text{ d) } \varphi \sim 40^\circ$$

$$\text{Visible: } 40^\circ - 90^\circ \Rightarrow \text{Dec} > -50^\circ$$

$$b) \delta = -10^\circ, \varphi \sim 40^\circ, El = 0^\circ$$

$$\sin El = \sin \delta \sin \varphi + \cos \delta \cos \varphi \cos HA$$

$$\cos HA = \frac{\sin El - \sin \delta \sin \varphi}{\cos \delta \cos \varphi} = 0.148$$

$$\Rightarrow HA = \pm 1.42^h$$

$$\text{So } Z = HA = 2.84^h \text{ above horizon}$$

$$c) \text{ i) } l, b = 0^\circ, 0^\circ$$

$$\text{T2000 } \alpha, \delta = 17:45:37.20, -28:56:10.2$$

$$\text{ii) T2000 } \alpha, \delta = 0^\circ, +90^\circ$$

$$l, b = 127.93^\circ, 27.13^\circ$$