**Space**

**Multiple Choice**

1 – E

2 – C

3 – E

4 – D

5 – E

6 – C

7 – D

8 – D

9 – B

10 – D

**Section 2**

1 a) Q (1) b) SAME (1) Acceleration down due to gravity is the same (1)

c) F=Ew/d (1) =5500/25 (1) = 220 N (1)

2 a) (i)3 x 108 m/s (1) (ii) d = vt (1) = 3 x 108 x 7.8 x 365 x 24 x 60 x 60 (1) = 7.4 x 1016 (m) (1)

b)(i) CCD/photodiode/photographic film/retina (1) (NOT ‘eye’ or ‘camera’) The **detector**. (ii) Same (1)

3 a) W=mg (1) = 3000 x 9.8 (1) = 29400 N (1)

b)(i) Light to electrical (NOT electricity) (1) (ii) To face the Sun (1)

(iii) E=Pt (1) = 395 x 2 x 60 x 60 (1) = 2.84MJ (1)

c)(i) 4 x 10 = 40N (1) (ii) a = F/m (1) = 40/2000 (1) = 0.02 ms-2 (1)

4 a) Nuclei (NOT atoms) joining together (and releasing energy) (1)

b) 5505 °C (1)

c) d = vt (1) = 3 x 108 x 640 x 365 x 24 x 60 x 60 (1) = 6.1 x 1018m (Exact final answer or 1 max)

d) The light/information will take 640 years to reach us (1)