

**M1.** (a) gravitational  
*accept gravity*  
*do **not** accept weight* 1

(b) (i) planet(s)  
*accept comet(s)*  
*accept asteroid(s)*  
*do **not** accept moon(s)* 1

(ii) balanced  
*accept equal / the same / are in equilibrium* 1

(iii) Milky Way  
*accept milky way* 1

**[4]**

- M2.** (a) dust  
*accept 'solid (s)'* 1
- space  
*accept 'from supernova / supernovum / supernovas'* 1
- (b) By atoms joining together  
*only one ticked or otherwise unambiguously identified* 1
- (c) Milky Way (galaxy) 1
- (d) The answer depends on beliefs and opinions, not scientific evidence.  
*only one ticked or otherwise unambiguously identified* 1

**[5]**

**M3.** (a) uranium-235  
*accept any correct indication* 1

(b) splits / breaks (into two smaller parts)  
*nucleus is separated is insufficient*  
*do **not** accept atom splits – on its own* 1

and (two / three) neutrons 1

(c) steam  
*correct order only* 1

turbine 1

generator 1

**[6]**

**M4.** four lines correct

*allow 1 mark for each correct line*

*if more than 1 line is drawn from a box in List A, mark each line incorrect*

**List A**

**List B**

the nuclei of two atoms joining together

the nucleus of an atom splitting into several pieces

an atom losing an electron

an electric charge moving through a metal

gamma emission

electric current

ionisation

nuclear fission

nuclear fusion

[4]

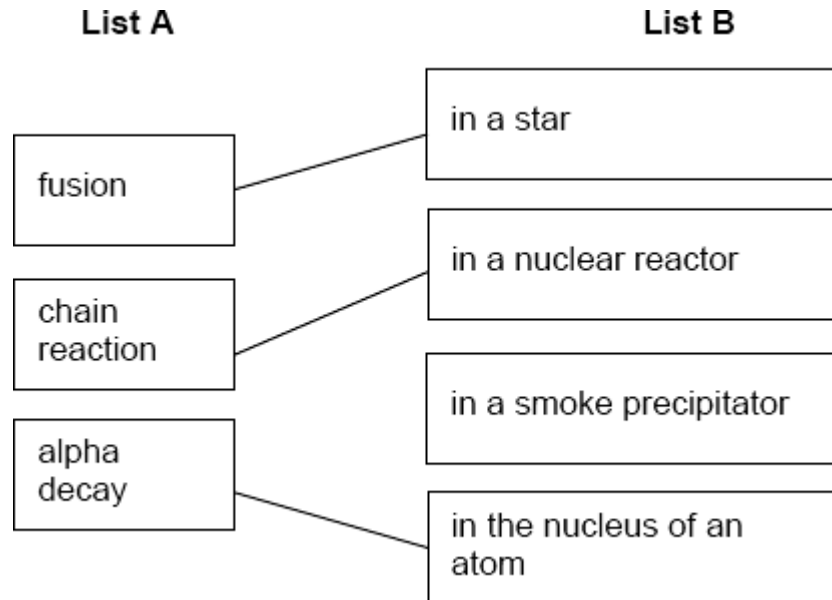
- M5. (a)** (i) protostar  
*correct order only* 1
- red giant 1
- black dwarf 1
- (ii) Alpha Centauri A  
*accept any correct indication, eg alpha, centauri, A*  
*reason only scores if Alpha Centauri A is chosen* 1
- stars (about) same size as Sun form white / black dwarfs  
**or**  
very large stars form red super giants / supernova/black hole  
*it is the same size as the Sun is insufficient*  
*same life cycle as the Sun is insufficient* 1
- (b) Atomic nuclei inside the star join together 1

**[6]**

**M6.three** lines correct

*allow 1 mark for each correct line*

*if more than 1 line is drawn from a box in **List A**, mark each line incorrect*



[3]