I means OR eg. green / blue - answer needs green OR blue ( ) means additional, not really required eg. Gauze (mat) - gauze would be sufficient : means AND eg. red : hot - answer needs red and hot.

| Question |  | Evidence | Marks |
| :---: | :---: | :---: | :---: |
| 1 | (a) | B | 1 mark |
|  | (b) | C | 1 mark |
|  | (c) | The temperature dropped more/by $25^{\circ} \mathrm{C}$ for the water in the outside tube or dropped less $/ \mathrm{by} 7^{\circ} \mathrm{C}$ for the water in the inside tube. | 1 mark |
| 2 | (a) | (i) A <br> (ii) D | 1/2 mark each |
|  | (b) | - The stigma is not feathery/ enclosed in the petals <br> - The anther is not loosely hanging outside the petals | $1 / 2$ mark for each idea |
|  | (c) | Reduced competition for resources such as light, space, nutrients and water (at least 2 named resources for 1 mark) | 1 mark |
|  | (d) | By animals because it has hooks | 1 mark |
| 3 | (a) | Arrows correctly drawn for each half | 1 marks |
|  | (b) | A right atrium B left ventricle | 1/2 mark each |
|  | (c) | Because the body needs energy when exercising, and the heart pumps oxygenated blood to the cells for it the convert stored food into energy | 1 mark |
|  | (d) | B <br> 1 because $B$ has a lower pulse before and during the activity 2 because $B$ reaches the resting pulse before $A$ | 1 mark each for the reasons |
| 4 | (a) | D | $1 / 2$ mark each |
|  | (b) | B |  |
|  | (c) | C |  |
|  | (d) | A |  |
| 5 | (a) | C water oxygen no light D no water oxygen no light E water no oxygen no light | 2 rows correct $1 / 2$ mark <br> All correct 1 mark |
|  | (b) | - Water and oxygen are BOTH needed for germination AND light is not needed because | 2 marks |


|  |  | - Seeds germinated when light was not present but did not germinate when water and oxygen is not present |  |
| :---: | :---: | :---: | :---: |
| 6 | (a) | 2 | 1/2 mark |
|  | (b) | Oxygen | 1/2 mark |
|  | (c) | 2,8,1 | 1 mark |
|  | (d) | - it has the same number of protons (positively charged particles) and electrons (negatively charged particles). <br> - The charges are balanced. | 1 marks |
| 7 | (a) | Radiation | 1/2 mark |
|  | (b) | - it is a good reflector and therefore does not absorb heat/ it radiates heat <br> - this prevents the firefighter from getting too hot | $1 / 2$ mark for each point |
|  | (c) | B <br> Because its temperature increases slowly and it does not get too hot | 1/2 mark <br> 1 mark |
| 8 | (a) | Correct plot Smooth curve | 1 mark ½ mark |
|  | (b) | Volume (mL) | 1/2 mark |
|  | (c) | 15 s (unit required for full mark) | 1 mark |
| 9 | (a) | It only shows whether a substance is acidic or alkali. It turns blue with and alkali or remains red with and acid/neutral | 1 mark |
|  | (b) | It changes colour with different substances | 1 mark |
|  | (c) | Because UI changes a different colour with a strong and a weak acid whereas red cabbage indicator changes red with both | 1 mark |
| 10 | (a) | (i) It gets attracted to/moves towards the soft iron core (ii) it falls back | $1 / 2$ mark each |
|  | (b) | Because iron is a magnetic material | 1 mark |
| 11 | (a) | (i) U and Z <br> (ii) V <br> (iii) $X / Y$ | 1/2 mark each 1/2 mark 1/2 mark |
|  | (b) | B <br> - it has no canines which is used for tearing meat, and herbivores only eat plant <br> - it has ridged molars/ premolars for grinding the plant matter | 1 mark each |
| 12 | (a) | Thick layer of rock | 1/2 mark |
|  | (b) | Crust | 1/2 mark |
| 13 | (a) | - Mix the soil in water <br> - Filter the mixture and get a clear filtrate/solution | $1 / 2$ mark each |



| 21 | (a) | Electrons, protons, nucleus, neutron | 1/2 mark <br> each |
| :---: | :---: | :---: | :---: |
|  | (b) | (i) 11 <br> (ii) 23 <br> (iii) 12 |  |
| 22 | (a) | B | 1 mark |
|  | (b) | Scar tattoo | 1/2 mark each |
| 23 | (a) | Positive | 1 mark |
|  | (b) | Electrons | 1 mark |
|  | (c) | The positive charge on the hair is attracted to the negative charge on the balloon | 1 mark |
| 24 | (a) | (i) Coeliac disease | 1/2 mark |
|  |  | (ii) Thai beef salad Tomato and feta tarts | 1 mark |
|  | (b) | Fig and apricot crunch | 1/2 mark |
|  | (c) | Bloating, nausea and abdominal pain | 1 mark |
| 25 | (a) | Warmed up | 1 mark |
|  | (b) | Tectonic | 1 mark |
|  | (c) | Convection | 1 mark |
|  | (d) | Volcanic eruptions | 1 mark |
| 26 | (a) | (i) SSN <br> (ii) $\mathrm{S} N \mathrm{~S}$ | 1mark <br> 1 mark |
|  | (b) | Size of the magnet <br> Size of each <br> The number of masses put on each tower | 1/2 mark each |
|  | (c) | Bar correctly drawn at 700 g | 1/2 mark |
| 27 | (a) | Photosynthesis | 1 mark |
|  | (b) | Chlorophyll | 1 mark |
|  | (c) | Starch | 1 mark |
| 28 | (a) | Metamorphic | 1 mark |
|  | (b) | Igneous | 1 mark |


|  | (c) | larger | 1 mark |
| :---: | :---: | :---: | :---: |
| 29 | (a) | (i) light <br> (ii) support | 1 mark each |
|  | (b) | No light | 1 mark |
| 30 |  | Electrical circuit circuit diagram <br> 1 3 <br> 2 4 <br> 3 1 <br> 4 2 | 1/2 mark each |
| 31 | (a) | Fossil | 1/2 mark |
|  | (b) | Starfish | 1/2 mark |
|  | (c) | The imprint on the chalk rock is shaped like a star | 1 mark |

