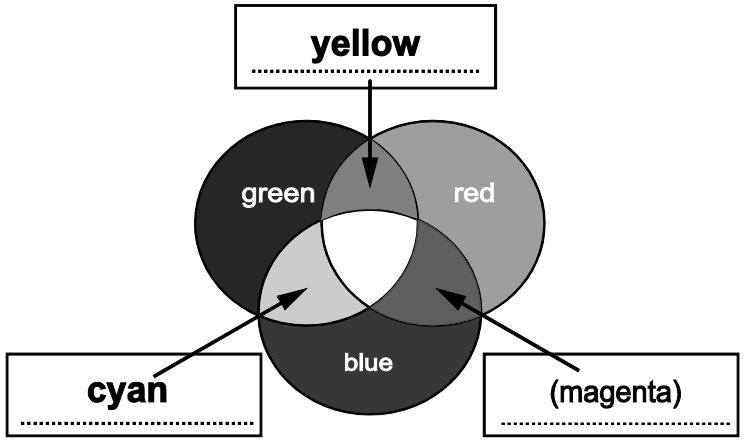
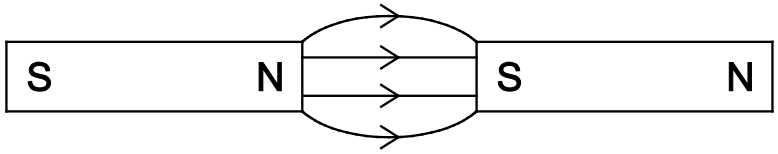
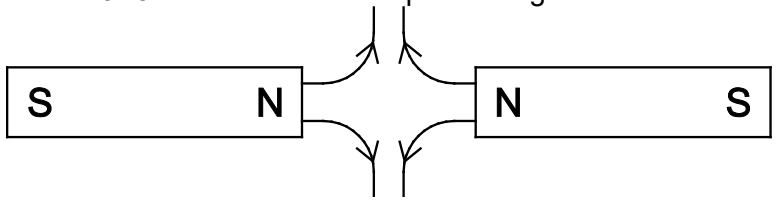
Question	Answer	Marks	Further Information
1(a)(i)	red (blood cell) / erythrocyte	**1**	
1(a)(ii)	**W** X Y Z	**1**	**Accept W** circled on diagram **Accept** any indication of the correct answer, e.g. ticking or underlining but circling takes precedence
1(b)	idea of white blood cells fight disease / kill germs	**1**	**Accept** fight infection **Accept** higher level answers, e.g. kill pathogens / make antibodies
1(c)(i)	plasma	**1**	**Accept** serum
1(c)(ii)	(transports) nutrients / carbon dioxide / hormones / urea	**1**	**Ignore** blood cells **Accept** named hormone / named nutrient / antibodies
1(d)(i)	10 (mm)	**1**	**Accept** to within ± 1 mm **Measure the diameter on the printed copy**
1(d)(ii)	5.0 (microns)	**1**	**Accept** ecf as **(d)(i)** × 0.5 **Accept** 5

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Further Information</th></tr>
<tr><td>2(a)</td><td><table><tr><th>particle</th><th>charge</th></tr><tr><td>proton</td><td>+ / positive</td></tr><tr><td>neutron</td><td>0 / no charge</td></tr><tr><td>electron</td><td>– / negative</td></tr></table></td><td>2</td><td>all three correct = 2 marks
one or two correct = 1 mark
For proton accept +1 or 1+
Do not accept 2+, +3 etc.
For electron accept –1 or 1–
Do not accept –2, 3– etc.</td></tr>
<tr><td>2(b)</td><td>nucleus</td><td>1</td><td></td></tr>
</table>

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Further Information</th></tr>
<tr><td>3(a)</td><td> 
</td><td>2</td><td>each correct colour = 1 mark</td></tr>
<tr><td>3(b)</td><td>blue light no light white light yellow light</td><td>1</td><td>Accept any indication of the correct answer, e.g. ticking or underlining but circling takes precedence</td></tr>
</table>

Question	Answer	Marks	Further Information
4(a)(i)	idea of groups of living organisms interacting with their environment	1	**Accept** living things and their surrounding **Accept** an answer that includes an example e.g. the inhabitants of a tropical rain forest
4(a)(ii)	**any two from** fewer competitors fewer predators abundance of food lots of places to breed more suitable habitats more shelter suitable climate / favourable climate fewer diseases	2	 **Accept** no competitors **Accept** no predators
4(a)(iii)	may eat all the plants idea / outcompete other species / introduce disease / destroy habitats / affect food chains or food webs	1	**Accept** eat lots of plants **Do not accept** eats other animals
4(b)(i)	**any one from** counting the number of foxes description of suitable sampling technique	1	 examples may include setting cameras to sample different area / (humane) traps to sample different areas
4(b)(ii)	idea of an organism that outcompetes a (native) organism	1	**Accept** species, animal or plant for organism
4(b)(iii)	**any one from** idea that the map shows a pattern of spread (from the South) across most of Australia foxes are found in areas they were not introduced	1	

Question	Answer	Marks	Further Information
5(a)	(mass) increases	1	
5(b)	105 ± 1 (g)	1	**Accept** a range of answers provided they are in the given range e.g. 104 – 106
5(c)	69 ± 1 (°C)	1	**Accept** a range of answers provided they are in the given range e.g. 68 – 70

Question	Answer	Marks	Further Information
6a		2	at least **two** lines going from N to S that do not cross or touch = 1 mark at least **one** correct arrow not contradicted = 1 mark
6b	at least **two** lines in the correct pattern e.g. 	1	**Ignore** direction of arrows if direction is incorrect in **(a)**

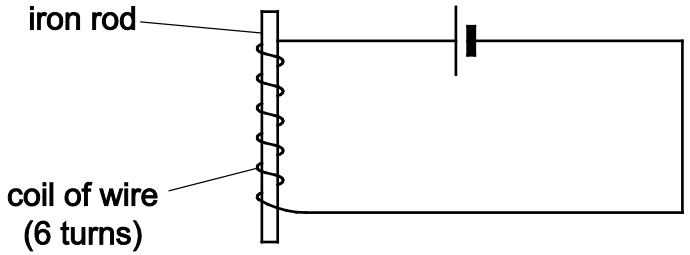
Question	Answer	Marks	Further Information
7(a)	galaxy	**1**	
7(b)	(stellar) dust / gas	**1**	**Accept** moons / asteroids / comets / sub-atomic particles / meteors
7(c)	solar system	**1**	

Question	Answer	Marks	Further Information
8(a)	magnesium + oxygen → magnesium oxide	**1**	**Accept** correct formulae or correct mix of words and formulae but word question takes precedence e.g. $Mg + O_2 \rightarrow MgO$
8(b)	gold is at the bottom of the reactivity series	**1**	**Accept** gold is inert
8(c)	calcium hydroxide hydrogen	**2**	**Accept** $Ca(OH)_2$ but name takes precedence **Accept** H_2 / H but name takes precedence

Question	Answer	Marks	Further Information
9(a)	400 × 3 = Oliver's weight × 2 **or** Oliver's weight = (400 × 3) ÷ 2 600 (N)	**2**	600 (N) on its own = 2 marks
9(b)	pressure = force ÷ area Pierre's pressure = (440 ÷ 0.04) = 11 000 (N/m^2) Rajiv's pressure = (500 ÷ 0.05) = 10 000 (N/m^2)	**3**	**two** correct pressure answers = 3 marks **Accept** correct numerical substitution into equation(s) = 1 mark

Question	Answer	Marks	Further Information
10(a)	**C**	**1**	**Accept** any indication of the correct answer on the diagram but answer line takes precedence
10(b)	core	**1**	must have the **name** not the letter
10(c)	**compass** electromagnet forcemeter voltmeter	**1**	**Accept** any indication of the correct answer e.g. underlining or ticking but circling takes precedence

Question	Answer	Marks	Further Information
11(a)	to make it a fair test / to control the variables	1	**Ignore** references to reliability or accuracy
11(b)	measure the temperature (of the acid) before adding metal measure the temperature of the reaction mixture at the end of the reaction	2	measure temperature at start and end / measure the temperature change = 2 marks **Accept** measure the temperature = 1 mark if no other mark awarded **Ignore** other measurements

Question	Answer	Marks	Further Information
12	 correct pieces of apparatus selected coil of wire on iron rod circuit correctly drawn	3	labels not needed iron rod, wire and cell = 1 mark **Ignore** ammeter, voltmeter and switch written or as part of the diagram even if diagram not correct = 1 mark **Accept** circuit correctly drawn = 3 marks If ammeter, voltmeter and switch shown they must be in the correct place in the circuit

Question	Answer	Marks	Further Information
13(a)	records allow trends and patterns to be observed	**1**	
13(b)(i)	to increase the validity of the results / to increase the reliability of the results / to enable you to make averages	**1**	**Accept** the Earth has a large surface area **Ignore** reference to accuracy
13(b)(ii)	**any one from** the changes may be very small (takes a long time) to see a pattern even out any anomalies	**1**	