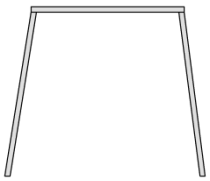
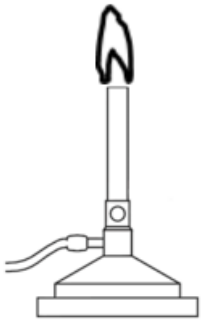
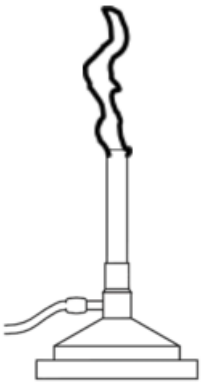
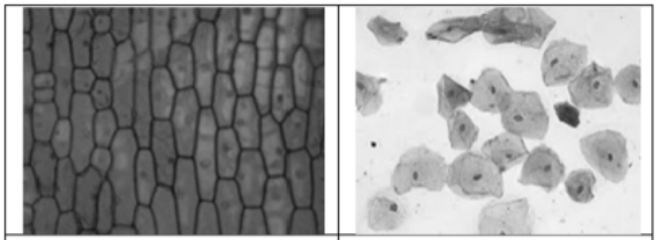
2015 9BC AS

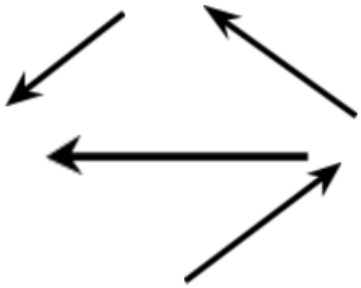
/ means OR eg. green / blue – answer needs green OR blue
( ) means additional, not really required eg. Gauze (mat) – gauze would be sufficient
: means AND eg. red : hot - answer needs red and hot.

<table>
<tr><th>Question</th><th></th><th colspan="3">Evidence</th><th>Marks</th></tr>
<tr><td rowspan="3">One</td><td>(a)</td><td colspan="3">Look on diagram
NOTE: did not accept eyewash station</td><td>Any
2-3 hazards = ½ mark
4-5 hazards circled = 1 mark</td></tr>
<tr><td></td><td colspan="3">For any one danger
• Danger identified e.g. long hair
• What might happen e.g might catch on fire
• What the student should be doing e.g should be tied back</td><td>---
1 mark
1 mark</td></tr>
<tr><td>(b)</td><td colspan="3">Quicker to read / easier to see / does not require ability to read (a language)/people don’t bother to read</td><td>1 mark</td></tr>
<tr><td></td><td></td><td></td><td>(Digital) balance /scales</td><td>A or E</td><td rowspan="4">½ mark each: max of 3 marks total</td></tr>
<tr><td></td><td> 
Accepted a 3D picture</td><td></td><td>C</td></tr>
<tr><td></td><td></td><td>Measuring cylinder</td><td>B</td></tr>
<tr><td></td><td></td><td>gauze / gauze mat</td><td></td></tr>
<tr><td>Two</td><td>(b)</td><td colspan="3">81.50 – 78.60 = 2.9 : g/grams</td><td>1 mark answer
1 mark units</td></tr>
<tr><td rowspan="2">Three</td><td>(a)</td><td colspan="3">30</td><td>1 mark</td></tr>
<tr><td>(b)</td><td colspan="3">45 mL drawn in cylinder B : good attempt at a meniscus</td><td>½ + ½ mark</td></tr>
<tr><td>Four</td><td></td><td colspan="3">I
O
I
I</td><td>½ mark each: 2 marks in total</td></tr>
</table>

Five				½ mark each: 3 marks in total
		Blue / colourless	Yellow / orange	
		Heating	safety flame	
Six	(a)	A and D		1 mark for <u>both</u> correct
	(b)	Filter / Filtering / Filtration		1 mark
	(c)	(Being insoluble) the bits/dirt are too big to pass through the filter paper		1 mark
Seven	(a)	Line drawn in ink Line would dissolve and travel up the paper too		1 mark
		Line with samples below solvent level Sample spots would dissolve in solvent and not travel up the paper		1 mark
	(b)	Any TWO of: it is a mixture, it is made of 3 colours, it contains C and B; it contains an unknown/unidentified dye		1 mark each: 2 marks in total
	(c)	Some dyes are more soluble than others and so travel faster/further up the paper		1 mark
Eight	(a)	B		1 mark
	(b)	D		1 mark
	(c)	Plastic bag = light and waterproof Rubber band = elastic and light Glass = transparent and easily breakable Gold ring = shiny and strong		½ mark each: 2 marks in total
Nine	(a)	B		1 mark
	(b)	condensation		1 mark
	(c)	Clamp (no NOT accept test tube holder)		1 mark
	(d)	Liquid		1 mark
	(e)	25-34^{o}C (anywhere in this range)		1 mark

Ten	(a)	transparent	½ mark
	(b)	Spot drawn on D	½ mark
	(c)	Angle of incidence should be measured from normal Incident ray (not incidence ray) Normal not drawn at 90° to mirror Normal is (usually) drawn as dotted line Arrow on reflected ray points in the wrong direction	1 mark each, max of 2
	(d)	Correct pathway off first / second mirror At least one correct arrow on the reflected ray	½ mark ½ mark
	(e)	A = lens B = retina C = allows light in	2-3 correct = 1 mark, no half marks
Eleven	(a)	Solar (cell, panel) - will not accept sunlight or light.	1 mark
	(b)	Passing cloud / "sun went in"	1 mark
	(c)	Chemical to heat = fuel being burned Light to chemical = plant making food by photosynthesis Kinetic to sound = guitar string vibrating	2 correct :1 mark 3 correct: 2 marks
Twelve	(a)	(i) neutrons (ii) nucleus (iii) electrons (iv) 14	½ mark ½ mark ½ mark ½ mark
	(b)	Seawater = mixture Gold = element	½ mark ½ mark
	(c)	(i) O_2 = D (ii) Ne = A (iii) H_2O = B (iv) CH_4 = C	½ mark each
Thirteen	(a)	he hears the echo / he hears the initial clap of his hands and then the echo NOTE: sound bounced/reflected back *may* be awarded a ½ mark if all the rest was correct	1 mark
	(b)	The flash : light travels faster than sound	½ mark + ½ mark
	(c)	(i) D (ii) A	½ mark ½ mark
Fourteen	(a)	Stopwatch, balance/scales to measure **mass**, (meter) ruler NOTE: Did not accept tape measure/timer	½ mark for 2
	(b)	Independent: Number of cases, mass of cases Dependent: time for cases to fall (from window to ground)	1 mark 1 mark
	(c)	Height the cases were dropped from / method of dropping cases / any other suitable answer	1 mark
	(d)	Number of cases (Note: also accepted mass of cases) / Time to fall (s) – Note: unit needed!	½ mark ½ mark
	(e)	Repeats / average repeat trials / test a larger range of # of cases / drops from greater height etc	1 mark

Fifteen	(a)	Animal that preys on others / animal that kills and eats other animals / animal that hunts and eats	1 mark
	(b)	They eat a [named animal e.g. spider / centipede/scorpion] : plant roots Note: Did not accept insects, small animals	1 mark each: 2 marks
	(c)	An adaptation is described e.g. high immunity to scorpion stings Adaptation is classified correctly e.g. Functional / physiological How it helps survival is described e.g. meerkat able to bite off sting and eat the scorpion's body (as food) / meerkat not poisoned as it kills scorpion for food (Many other adaptations e.g standing up on sentry duty; behavioural adaptation; looks out for predators)	½ mark 1 mark ½ mark but it must link with the description
	(d)	Plant, animal and fungi/fungus	1 mark
Sixteen	(a)	A = eyepiece B = focus wheel C = revolving nosepiece D= to magnify	3-4 correct = 1 mark
	(b)	 Onion cells	1 mark
	(c)	Thin piece of onion skin / epidermis on a slide Add a drop of iodine / stain Gently lower coverslip (to avoid air bubbles) Iodine / stain is to help make some structures easier to see Note: answer had to follow sensible sequence and make sense	4 x ½ marks
	(d)	Plant 2 correct reasons e.g. has cell wall, has chloroplasts, has big central vacuole, has a regular shape etc	1 mark ½ mark + ½ mark
Seventeen	(a)	They have an effect similar to that of a greenhouse Explains = they prevent some of the sun's heat escaping back into space / make the earth warm up	½ mark only BUT 1 mark
	(b)	Specific example only of substance released and effect Definition of Pollution – released substance which has harmful or poisonous effects	½ mark only BUT 1 mark
	(c)	• Plots 3 points correctly • Smooth line drawn through air points (ignore others)	½ mark ½ mark
	(d)	3-4 minutes	1 mark
	(e)	Methane absorbs more heat than carbon dioxide or just plain air – or any conclusion backed up by the data	1 mark
	(f)	Named effect e.g. loss of habitat as different plants grow in an area ½ mark for vague answer but didn't explain it well.	1 mark

Eighteen	(a)		½ mark ½ mark ½ mark ½ mark For each correct arrow. Take off half a mark for more than 4 arrows. No arrow heads but all 4 only links correct / all 4 correct links only but arrows wrong way = 1 mark only
	(b)	Plant is a producer Plants make food / plants do photosynthesis	½ mark ½ mark
	(c)	Animal X Reasons - as it eats Z AND it is eaten by Y	½ mark ½ mark
	(d)	Y will decrease / stay the same Reason: decrease as it has lost a food source / decrease but will have to eat more X: Accept any plausible scenario	½ mark ½ mark
	(e)	Decompose/break down dead plants / animals = ½ mark only Not EATS/CONSUMES dead plants/animals Recycles materials/nutrients locked up in dead plants/animals = full 1 mark	1 mark
Nineteen	(a)	Group 1 = 3 eyes, Group 2 = 2 eyes (There are other answers)	1 mark
	(b)	Group 3 = rectangle bodies, Group 4 = not rectangle bodies OR Group 1 = 6 hands, Group 2 = not 6 hands / has 2 hands (There are other answers)	1 mark
	(c)	Key developed that identifies 2, 3-4 or 5-6 animals	2 identified = 1 mark 3-4 identified = 2 marks 5-6 identified = 3 marks
Twenty	(a)	Even scale on x-axis 20. 30. 30 etc x-axis labelled 'blade angle, degrees'	½ and ½
		8-10 of points plotted correctly : appropriate line through points Line drawn - shows increase and then decrease	½ and ½
	(b)	As angle increases up to 40° the voltage increases : greater than that it drops For full marks the student needed to indicate a value (e.g. 'increased	½ + ½ mark

		to 40 degrees then decreased')	
	(c)	Any two suitable controlled variable e.g. strength of wind, distance of fan, size of blades etc: ½ mark each	½ + ½ mark
	(d)	Noisy / ugly / occupy valuable land	½ mark
	(e)	Any one site chosen AND a disadvantage given e.g. site D – costs a lot to locate a wind farm offshore or site B - close to settlement - might look ugly/be noisy etc	½ mark