Question number	Answer	Notes	Marks
1 (a) (i)	fungi / fungus;	allow phonetic spelling eg funghi	1
(ii)	no <u>oxygen</u>;	ignore no air	1
(iii)	glucose; ⟶ ethanol/alcohol + carbon dioxide;	allow 1 for chemical symbols	2
(b) (i)	steam / radiation / high temperature / disinfectant / ethanol / washed in hot water / eq;		1
(ii)	remove pathogens / bacteria / microorganisms / eq;	ignore prevent competition / prevent contamination	1
(c) (i)	<u>amylase</u> / <u>maltase</u>;	gnore amylose / maltose	1
(ii)	<u>maltose</u> / <u>glucose</u>;		1
(d)	1. ss food / less glucose / less maltose; 2. (crease in) ethanol / alcohol;	ignore less barley ignore beer	2

Total 10 marks

Question number	Answer	Notes	Marks
2 (a)	1. fore and after exercise; 2. br ths per minute;	allow interchangeable rows /columns ignore breathing rate no credit for graph	2
(b)	1. muscle(s); 2. spiration; 3. oxyg required; 4. remove lactic acid; 5. oxyg debt; 6. r ove carbon dioxide;		4
(c)	1. repeat / use more people / eq; 2. m sure breathing rate during exercise; 3. mebody else / machine / data logger / spirometer count breaths / eq; 4. run t same speed / for same time same distance / run on treadmill / eq;		2

Total 8 marks

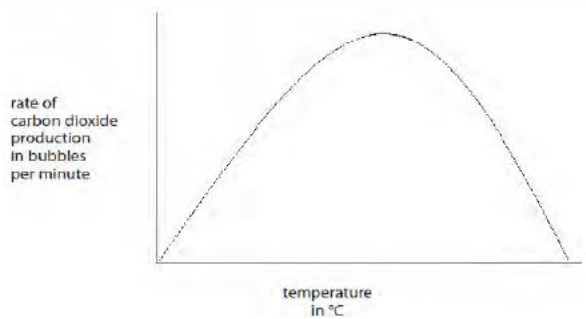
Question number	Answer	Notes	Marks
3 (a)	1. r eated / 3 readings / 3 times / average / more than once / eq; 2. similar pattern for red / for green); 3. anomaly ignored in calculation of average for blue light;		Max 2
(b)	measuring cylinder / syringe / scale on the side / eq;	Ignore measure volume	1
(c)	colour / wavelength of light;	Light alone = 0	1
(d)	1. ss of plant / size of plant / length of plant / amount of plant; 2. ecies of plant / type of plant / same plant; 3. age of plant; 4. t perature (of water) / room temperature; 5. mass/amount of sodium hydrogen carbonate / conc. of carbon dioxide / eq; 6. lume/amount of water / volume of indicator / eq; 7. ght intensity / light duration / eq;	Ignore heat Same size test tube/beaker = 0 Ignore time Ignore same funnel exit	max 3

Total 7 marks

Question number	Answer	Notes	Marks
4 (a)	(yeast) glucose ONLY; alcohol/ethanol + carbon dioxide (+ energy) ONLY;	Allow if $C_6H_{12}O_6$ Allow C_2H_5OH and CO_2	2
(b)	lim ter; (clear to) cloudy / (clear to) milky / eq; or hydrogen carbonate indicator; (orange to) yellow / eq;		2 max
			Total 4 marks

Question number	Answer	Notes	Marks
5(a)	1. bronchitis; 2. cil (ted cells) anaesthetised / damaged / eq; 3. cteria / pathogens / microorganisms; 4. c cer / carcinogens / tumour; 5. tar; 6. em ysema; 7. ss surface area / less gas exchange / less diffusion / eq; 8. i a that <u>alveoli</u> digested / damaged / fused / eq;	Ignore infection lower SA of <u>alveoli</u> = 2 <u>alveoli</u> alone = 0	max 5
(b)	1. r blood cells; 2. xy)haemoglobin / carboxyhaemoglobin; 3. ss oxygen; 4. (ss) respiration / metabolism / energy / ATP;		max 3

Total 8 marks

Question number	Answer	Notes	Marks
6 (a)	keep out oxygen; anaerobic / prevent aerobic idea / eq;	respiration alone gets no credit	2
(b) (i)	 starts low and rises; peak / level / rise less steep; down;	inverted = 0	3
(ii)	carbon dioxide / CO_2 (production);		1
(iii)	temperature;		1
(c)	volume of glucose; concentration / mass of glucose; mass / volume / number / of yeast; species / type of yeast; pH of solution;	allow amount / quantity ignore volume of water in bath ignore room temperature ignore ref to oxygen ignore ref to oil	2
(d)	repeat / eq;		1
(e)	volume of gas / measuring cylinder / syringe / eq;		1

Question number	Answer	Notes	Marks
6 (f)	glucose; → ethanol/alcohol; + carbon dioxide;	ignore yeast on left hand side of equation but reject if any other substance used ignore energy / heat allow symbols only if correct eg CO2 = 0 CO_2 = 1	3

Total 14 marks