



# Mark Scheme (Results)

Summer 2024

Pearson Edexcel International GCSE  
In Biology (4BI1) Paper 1BR

Question Number	Answer	Mark
<b>1(a)(i)</b>	<p><b>C (absent, present, absent)</b></p> <p><i>A is incorrect because red blood cells have cytoplasm</i>  <i>B is incorrect because human red blood cells do not have a nucleus</i>  <i>D is incorrect because red blood cells do not have a cell wall</i></p>	<b>1</b>

Question Number	Answer	Mark
<b>1(a)(ii)</b>	<p><b>D (tissue)</b></p> <p><i>A is incorrect because organs have more than one cell type</i>  <i>B is incorrect because organisms have more than one cell type</i>  <i>C is incorrect systems have more than one cell type</i></p>	<b>1</b>

Question Number	Answer	Additional guidance	Mark
<b>1(b)(i)</b>	<p>A description that makes reference to the following:</p> <ul style="list-style-type: none"> <li>• use a syringe / pipette / beaker / (measuring) cylinder / eq (1)</li> <li>• mix 5 (cm<sup>3</sup>) of (10%) sucrose solution with 5 (cm<sup>3</sup>) water / eq (1)</li> </ul>	<p><b>Accept</b> other correct measuring apparatus</p> <p><b>Accept</b> take 5 (cm<sup>3</sup>) sucrose and make up to 10 (cm<sup>3</sup>) with water / add equal volumes of water and sucrose and use 10 (cm<sup>3</sup>) / eq</p>	<b>2</b>

Question Number	Answer	Additional guidance	Mark
<b>1(b)(ii)</b>	<p>An explanation that makes reference to three of the following:</p> <ul style="list-style-type: none"> <li>• water leaves (the cells) / eq (1)</li> <li>• by <u>osmosis</u> (1)</li> <li>• from a high(er) water potential to a lower water potential / from higher water concentration to lower water concentration / from dilute solution to concentrated solution / eq (1)</li> <li>• membrane detaches from cell wall / cell is flaccid / cytoplasm shrinks / cytoplasm volume decreases / cells are plasmolysed / eq (1)</li> </ul>	<p><b>Accept</b> lose water</p> <p><b>Accept</b> water moves from a high concentration to a low concentration</p> <p><b>Ignore</b> cell shrinks</p>	<b>3</b>

**Total 7 marks**

Question Number	Answer	Mark
<b>2(a)(i)</b>	<b>C (Y)</b> <i>A is incorrect because V is the ovary B is incorrect because X is the stigma D is incorrect because Z is the filament</i>	<b>1</b>

Question Number	Answer	Mark
<b>2(a)(ii)</b>	<b>A (V)</b> <i>B is incorrect because W does not become a fruit C is incorrect because X does not become a fruit D is incorrect because Y does not become a fruit</i>	<b>1</b>

Question Number	Answer	Additional guidance	Mark
<b>2(b)(i)</b>	96 (X) (3)  Stages of calculation: <ul style="list-style-type: none"> <li>• conversion of mm to <math>\mu\text{m}</math> (30 000)</li> <li>• division of measured length by actual</li> <li>• given to whole number</li> </ul>	96 = <b>3 marks</b>  95.8466... = <b>2 marks</b>  <b>1 mark</b> for 30 000 <b>or</b> 0.313 <b>or</b> division by 313 <b>or</b> division by 0.313 <b>or</b> division by other combinations of 313 (e.g. 0.000313)  Correct answer gains all three marks	<b>3</b>

Question Number	Answer	Additional guidance	Mark
<b>2(b)(ii)</b>	<ul style="list-style-type: none"> <li>• spikes / hooks / sticky / eq (1)</li> </ul>		<b>1</b>

Question Number	Answer	Additional guidance	Mark
<b>2(c)</b>	<p>An answer that makes reference to two of the following:</p> <ul style="list-style-type: none"><li>• asexual reproduction (1)</li><li>• cuttings are <u>genetically</u> identical / have same <u>alleles</u> / same <u>genes</u> / are <u>clones</u> / eq (1)</li><li>• faster / can be produced at any time of year / can be done from only one plant / no need to have insects / eq (1)</li></ul>		<b>2</b>

**Total 8 marks**

Question Number	Answer	Additional guidance	Mark
<b>3(a)(i)</b>	<ul style="list-style-type: none"> <li>• diaphragm (1)</li> </ul>		<b>1</b>

Question Number	Answer	Mark
<b>3(a)(ii)</b>	<p><b>C (increases decreases)</b></p> <p><i>A is incorrect because the volume increases</i>  <i>B is incorrect because the volume increases</i>  <i>D is incorrect because the pressure decreases</i></p>	<b>1</b>

Question Number	Answer	Additional guidance	Mark
<b>3(a)(iii)</b>	<p>A description that makes reference to two of the following:</p> <ul style="list-style-type: none"> <li>• jar cannot expand / cannot change shape / jar is rigid / ribcage can move / thorax can move / eq (1)</li> <li>• no intercostal muscles / no ribs / eq (1)</li> <li>• no pleural membrane / no pleural fluid / balloons do not touch the sides of jar / eq (1)</li> </ul>	<p><b>Accept</b> only shows diaphragm action</p> <p>no ribs to move = <b>2 marks</b></p>	<b>2</b>

Question Number	Answer	Mark
<b>3(b)(i)</b>	<p><b>D (trachea bronchus bronchiole alveolus)</b></p> <p><i>A is incorrect because bronchiole is not first</i>  <i>B is incorrect because bronchus is not first</i>  <i>C is incorrect because bronchiole is not second</i></p>	<b>1</b>

Question Number	Answer	Additional Guidance	Mark
<b>3(b)(ii)</b>	<ul style="list-style-type: none"> <li>• <math>1.9 \times 10^6</math> (2)</li> </ul>	<p>1 900 000 = <b>one mark</b>  <b>or</b>  1 920 000 = <b>one mark</b>  <b>or</b>  <b>one mark</b> for correct answer with wrong standard form e.g. <math>19 \times 10^5</math></p> <p><b>Accept</b> <math>1.92 \times 10^6</math></p> <p>Correct answer gains two marks</p>	<b>2</b>

Question Number	Answer	Additional guidance	Mark
<b>3(b)(iii)</b>	<p>An explanation that makes reference to four of the following:  <b>(Mark in pairs)</b></p> <ul style="list-style-type: none"> <li>• one cell thick layer (for alveoli or capillaries) / thin layer / thin membrane / eq (1)</li> <li>• short <u>diffusion</u> path / rapid <u>diffusion</u> / easy <u>diffusion</u> / eq (1)</li> <li>• blood supply / capillaries / blood vessels / blood / eq (1)</li> <li>• maintains concentration gradient / maintains diffusion gradient / steep gradient / eq (1)</li> <li>• moisture / fluid / eq (1)</li> <li>• dissolves gases / allows gases to pass through (alveolar) wall / eq (1)</li> </ul>	<p><b>Do not award</b> function mark without correct structure</p> <p><b>Accept</b> maintains gradient</p> <p><b>Ignore</b> surface area</p>	<b>4</b>

Question Number	Answer	Additional guidance	Mark
<b>3(b)(iv)</b>	<p>A description that makes reference to three of the following:</p> <ul style="list-style-type: none"> <li>• use of limewater / hydrogen carbonate indicator (1)</li> <li>• measure time taken (for limewater) to go cloudy / measure time taken (for indicator) to change / eq (1)</li> <li>• measure with and without exercise / measure before and after exercise / have one person exercising and one resting / eq (1)</li> <li>• same volume of limewater / same volume of indicator / same temperature of room / same age / sex / fitness of person / eq (1)</li> <li>• repeats / calculate mean / eq (1)</li> </ul>	<p><b>Accept</b> calcium hydroxide (solution)</p> <p><b>Accept</b> measure cloudiness after time / / see how much colour changes after time / eq</p>	<b>3</b>

**Total 14 marks**

Question Number	Answer	Mark
<b>4 (a)(i)</b>	<b>C (maltose)</b> <i>A is incorrect because amino acids are not produced</i> <i>B is incorrect because glycerol is not produced</i> <i>D is incorrect because sucrose is not produced</i>	<b>1</b>

Question Number	Answer	Mark
<b>4 (a)(ii)</b>	<b>C (2 and 3 only)</b> <i>A is incorrect because the colon does not produce amylase</i> <i>B is incorrect because the colon does not produce amylase</i> <i>D is incorrect because the pancreas also produces amylase</i>	<b>1</b>

Question Number	Answer		Mark
<b>4 (b)(i)</b>	<ul style="list-style-type: none"> <li>to reach temperature / bring to temperature / make sure at 10 °C / equilibrate / warm up / eq (1)</li> </ul>	<p><b>Accept</b> to make them same temperature</p> <p><b>Accept</b> make sure tubes are at the temperature</p> <p><b>Accept</b> to make correct temperature</p> <p><b>Accept</b> so solutions adjust to temperature</p>	<b>1</b>

Question Number	Answer	Additional guidance	Mark
<b>4 (b)(ii)</b>	<ul style="list-style-type: none"> <li>add iodine (solution) (1)</li> <li>black / (dark) blue (colour) (1)</li> </ul>	<b>Ignore</b> purple	<b>2</b>

Question Number	Answer	Additional guidance	Mark
<b>4 (c) (i)</b>	<ul style="list-style-type: none"> <li>• 23 (2)</li> </ul>	<p><b>one mark</b> for 23.3333.....</p> <p>correct answer gains both marks</p>	<b>2</b>

Question Number	Answer	Additional guidance	Mark
<b>4(c)(ii)</b>	<p>An explanation that makes reference to two of the following:</p> <ul style="list-style-type: none"> <li>• increased (kinetic) energy (1)</li> <li>• faster movement (of enzyme and substrate) / eq (1)</li> <li>• more collisions / greater rate of collisions / more E/S complexes / eq (1)</li> <li>• reaches <u>optimum temperature for enzymes</u> (1)</li> </ul>		<b>2</b>

Question Number	Answer	Additional guidance	Mark
<b>4(c)(iii)</b>	<p>An explanation that makes reference to two of the following:</p> <ul style="list-style-type: none"> <li>• enzyme denatures / amylase denatures (1)</li> <li>• active site changes shape / enzyme is not complementary to substrate / enzyme changes shape / eq (1)</li> <li>• substrate / starch no longer binds / fits / eq (1)</li> </ul>		<b>2</b>

Question Number	Answer	Additional guidance	Mark
<b>4(c)(iv)</b>	<p>An explanation that makes reference to two of the following:</p> <ol style="list-style-type: none"> <li>1. use smaller temperature intervals / / use 5 °C intervals / use 1 °C intervals / eq (1)</li> <li>2. between 30 and 40 / between 30 and 50 / between 40 and 50 / the rate may be faster at temperatures above or below 40 / optimal may not be at 40 / eq</li> <li>3. use smaller time intervals / eq (1)</li> <li>4. as similar recorded times may actually be different / eq (1)</li> </ol>	<p><b>Accept</b> more temperature intervals</p> <p><b>Accept</b> more temperatures between 30 and 40 / 30 and 50 / 40 and 50 for <b>two marks</b></p> <p><b>Accept</b> more temperatures around 40 °C for <b>two marks</b></p>	<b>2</b>

**Total 13 marks**

Question Number	Answer	Mark
<b>5(a)(i)</b>	<b>C (2 and 3 only)</b>  <i>A is incorrect because chitin is not present in either</i> <i>B is incorrect because chitin is not present in either</i> <i>D is incorrect because both have chloroplasts</i>	<b>1</b>

Question Number	Answer	Mark
<b>5(a)(ii)</b>	<i>any two of :</i>  (polar) bear / seal / (grey) whale / predatory fish (1)	<b>1</b>

Question Number	Answer	Additional guidance	Mark
<b>5(a)(iii)</b>	phytoplankton → zooplankton → plankton-eating fish → predatory fish → seal → (polar) bear (2)	<b>one mark</b> for correct organisms in order  <b>one mark</b> for correct arrow direction  <b>no marks</b> for pyramids  <b>no marks</b> for food chain not linked to question	<b>2</b>

Question Number	Answer	Additional guidance	Mark
<b>5(b)(i)</b>	<ul style="list-style-type: none"> <li>950% (2)</li> </ul> Example of calculation:  correct increase (12.6 – 1.2 = 11.4)  correct percentage calculation	<b>one mark</b> for 12.6 – 1.2 <b>or</b> 11.4 <b>or</b> division by 1.2  Correct answer with no working gains both marks	<b>2</b>

Question Number	Answer	Additional guidance	Mark
<b>5(b)(ii)</b>	<p>An answer that makes reference to five of the following points:</p> <ol style="list-style-type: none"> <li>1. phytoplankton / zooplankton (biomass) is low in winter / eq (1)</li> <li>2. phytoplankton mass increases in (mid) spring / as light increases, phytoplankton (biomass) increases / eq (1)</li> <li>3. (phytoplankton increase in late spring) due to <u>photosynthesis</u> / eq (1)</li> <li>4. (photosynthesis) produces glucose / sugar / carbohydrates / eq (1)</li> <li>5. zooplankton increase (when phytoplankton is high) as more food / more phytoplankton to eat / eq (1)</li> <li>6. phytoplankton decreases when consumed by (many) zooplankton / increases when few zooplankton eating them / eq (1)</li> <li>7. (when phytoplankton increase) nitrates decrease as phytoplankton absorb them / use them / eq (1)</li> <li>8. nitrates used to make amino acids / protein / chlorophyll / eq (1)</li> <li>9. phytoplankton biomass <u>limited by</u> nitrates / light / zooplankton population / eq (1)</li> </ol>	<p><b>Accept</b> phytoplankton decreases in (late) autumn</p> <p><b>Accept</b> less photosynthesis in winter / less photosynthesis in late autumn / less photosynthesis in low light / less photosynthesis in low temperature</p> <p><b>Accept</b> zooplankton decrease when there is less food</p> <p><b>Accept</b> phytoplankton population falls if not enough nitrate to take in</p>	<b>5</b>

**Total 11 marks**

Question Number	Answer	Additional guidance	Mark
<b>6(a)</b>	<p>A description that makes reference to four of the following points:</p> <ol style="list-style-type: none"> <li>1. <u>receptor</u> (generates impulse) / eq (1)</li> <li>2. (impulse) passes along sensory neurone (to relay / motor neurone / to CNS / spinal cord) (1)</li> <li>3. (sensory / relay / CNS / spinal cord) to motor neurone (1)</li> <li>4. to muscle / effector (1)</li> <li>5. crosses synapses (1)</li> <li>6. (using) neurotransmitters (1)</li> </ol>		<b>4</b>

Question Number	Answer	Additional guidance	Mark
<b>6(b)(i)</b>	<p>S: linear scales for both axes (1)</p> <p>L: straight line joining points (1)</p> <p>A: axes correct way round (1)</p> <p>A: axes both labelled, and with units on y axis (1)</p> <p>P: points plotted correctly (1)</p>	<p>must use at least half grid</p> <p>no extrapolation</p> <p>stimulus number on horizontal axis</p> <p>time / seconds <u>and</u> stimulus number</p> <p>+/- half square</p> <p>bar chart loses L</p>	<b>5</b>

Question Number	Answer	Additional guidance	Mark
<b>6(b)(ii)</b>	<p>A description that makes reference to the following points:</p> <ul style="list-style-type: none"> <li>• (time) decreases / eq (1)</li> <li>• falls (more steeply) after 5 / from 6 touches / small decrease until 5 or 6 / eq (1)</li> </ul>	<b>Accept</b> increase at 4 touches	<b>2</b>

Question Number	Answer	Additional guidance	Mark
<b>6(b)(iii)</b>	<p>An explanation that makes reference to two of the following points:</p> <ul style="list-style-type: none"> <li>• (few stimuli) could represent danger / allow escape / escapes predator / snail not eaten / helps snail survive / eq (1)</li> <li>• (repeated stimuli) suggests no danger / no longer represents danger / snail recognises there is no threat / has learnt that there is no danger / eq (1)</li> <li>• (when not staying in shell) snail can eat for longer / can continue moving / does not waste energy / eq (1)</li> </ul>	<b>Accept</b> could be rain / plant / obstacle / snail has habituated	<b>2</b>

**Total 13 marks**

Question Number	Answer	Additional guidance	Mark
<b>7(a)(i)</b>	<p>An explanation that makes reference to four of the following points: <b>(mark in pairs)</b></p> <ul style="list-style-type: none"> <li>• thick layer of elastic / (more) elastic / eq (1)</li> <li>• as blood pressure is higher / for wall to recoil / to expand / wall can stretch / smooths blood flow / eq (1)</li> <li>• thick layer of muscle / (more) muscle / eq (1)</li> <li>• control blood flow / eq (1)</li> <li>• no valves (1)</li> <li>• as blood pressure is sufficient to prevent backflow / no need to prevent backflow / eq (1)</li> </ul>	<p><b>Accept</b> converse for veins</p> <p><b>Accept</b> converse for veins</p> <p><b>Accept</b> thick wall due to high pressure (two marks) if no mp1 or mp3</p> <p><b>Accept</b> converse for veins</p>	<b>4</b>

Question Number	Answer	Additional guidance	Mark
<b>7(a)(ii)</b>	<p>An explanation that makes reference to three of the following points:</p> <ul style="list-style-type: none"> <li>• artery has blockage / less blood can flow / artery is narrow / artery has narrow lumen / eq (1)</li> <li>• less oxygen (to heart muscle) / eq (1)</li> <li>• less (aerobic) respiration / more anaerobic respiration / eq (1)</li> <li>• less energy / less ATP / eq (1)</li> <li>• so heart unable to beat faster during exercise / eq (1)</li> </ul>		<b>3</b>

Question Number	Answer	Additional guidance	Mark
<b>7(b)(i)</b>	<p>An answer that makes reference to one of the following points:</p> <ul style="list-style-type: none"> <li>• high cholesterol / high fat diet / eq (1)</li> <li>• lack of exercise / eq (1)</li> <li>• stress / eq (1)</li> <li>• high salt (diet) (1)</li> <li>• high BMI / obesity / eq (1)</li> <li>• diabetes (1)</li> <li>• age / eq (1)</li> <li>• sex (1)</li> <li>• high blood pressure (1)</li> </ul>	<b>Ignore</b> diet / bad diet unbalanced diet	<b>1</b>

Question Number	Answer		Mark
<b>7 (b)(ii)</b>	<p>An answer that makes reference to five of the following points:</p> <ol style="list-style-type: none"> <li>1. smoking increases risk of CHD (in all groups) / eq (1)</li> <li>2. more alleles (always) increases risk (of CHD) / eq (1)</li> <li>3. highest risk is for smokers with high number of alleles / lowest risk is for non-smokers with few alleles / eq (1)</li> <li>4. biggest increase from smoking is for those with few risk alleles / lower increase from smoking with medium or high allele group / eq (1)</li> <li>5. smokers with few alleles have same risk of CHD than non-smokers with many alleles / eq (1)</li> <li>6. credit manipulated data, e.g. smoking increases risk by 1 for low allele group (1)</li> <li>7. carbon monoxide (in cigarette smoke) (causes CHD) (1)</li> <li>8. smoking causes plaques / cholesterol build up / blocks coronary artery / eq (1)</li> <li>9. no mention of group size in data / may be low sample size / eq (1)</li> <li>10. no mention of age / sex / diet / other health issues / frequency of smoking / eq (1)</li> </ol>	<p><b>Accept</b> same increase in risk from smoking in medium and high allele groups / eq</p> <p><b>Accept</b> no repeats</p>	<b>5</b>

**Total 13 marks**

Question Number	Answer	Additional guidance	Mark
<b>8(a)(i)</b>	<p>An answer that makes reference to the following points:</p> <ul style="list-style-type: none"> <li>• correct genotypes of parents (Dd, dd) (1)</li> <li>• correct gametes (D or d, d (or d)) (1)</li> <li>• correct genotypes of offspring (Dd, dd)</li> <li>• correct probability of 0.5 / 50 % <math>\frac{1}{2}</math> / eq (1)</li> </ul>	<p><b>ECF for mp2 and 3 only</b></p> <p><b>Accept</b> mp1 – 3 from Punnet square</p> <p><b>Accept</b> other letters but must be capital and lower case of same letter</p> <p><b>only award mp4 from attempt at correct cross</b></p>	<b>4</b>

Question Number	Answer	Additional guidance	Mark
<b>8(a)(ii)</b>	<p>An answer that makes reference to two of the following points:</p> <ul style="list-style-type: none"> <li>• less water absorbed (into blood) (1)</li> <li>• by colon / intestine (1)</li> <li>• as sugar / lactose is not absorbed (1)</li> <li>• (as lactose) affects osmosis / lowers water potential / eq (1)</li> <li>• (lactose could cause) bacteria to grow / bacteria break down lactose / eq (1)</li> </ul>	<p><b>Accept</b> small or large intestine</p> <p><b>Allow</b> microorganisms</p>	<b>2</b>

Question Number	Answer	Additional guidance	Mark
<b>8(a)(iii)</b>	<p>An explanation that makes reference to four of the following points:</p> <ul style="list-style-type: none"> <li>• mutation (occurred) (1)</li> <li>• creating (genetic) variation (1)</li> <li>• people with lactose tolerance (DD or Dd) can drink milk / did not get diarrhoea / can gain extra nutrients / were able to compete better / survived / had a selective advantage / eq (1)</li> <li>• reproduced (more) / produced offspring / eq (1)</li> <li>• pass on allele / gene / mutation / eq (1)</li> </ul>	<p>Pass on allele to next generation / offspring = <b>mp4 and mp5</b></p>	<b>4</b>

Question Number	Answer	Additional guidance	Mark
<b>8(b)(i)</b>	<p>An explanation that makes reference to the following points:</p> <ul style="list-style-type: none"> <li>• mixes the contents / spreads nutrients / maintains even consistency / prevent settling / eq (1)</li> <li>• maintain even temperature / prevent hot spots / maintain an even pH / eq (1)</li> </ul>	<p><b>Accept</b> moves contents <b>Accept</b> keep bacteria and milk in contact <b>Ignore</b> stir</p> <p><b>Accept</b> distributes heat (energy) <b>Ignore</b> maintain optimal temperature</p>	<b>2</b>

Question Number	Answer	Additional guidance	Mark
<b>8(b)(ii)</b>	<p>An explanation that makes reference to two of the following points:</p> <ul style="list-style-type: none"> <li>removes heat / cools the fermenter / eq (1)</li> <li>to maintain <u>optimal temperature</u> (1)</li> <li>prevent enzymes denaturing / prevent death of bacteria / eq (1)</li> </ul>	<p><b>Ignore</b> warms up</p> <p><b>Allow</b> microorganisms</p>	<b>2</b>

**Total 14 marks**

Question Number	Answer	Additional guidance	Mark
<b>9(a)</b>	<p>A description that makes reference to the following points:</p> <ul style="list-style-type: none"> <li>• plasmid (used) (1)</li> <li>• restriction enzyme used to cut out gene / cut plasmid / cut DNA / eq (1)</li> <li>• ligase used to insert gene into plasmid / stick DNA / glue DNA / stick gene with DNA / eq (1)</li> </ul>	<p><b>Accept</b> alternatives for cut out e.g. remove / extract</p>	<b>3</b>

Question Number	Answer	Additional guidance	Mark
<b>9(b)</b>	<p>An explanation that makes reference to three of the following points:</p> <ul style="list-style-type: none"> <li>• increasing temperature increases the rate of photosynthesis / eq (1)</li> <li>• because particles have more (kinetic) energy / more frequent collisions / there is more enzyme activity / eq (1)</li> <li>• (at low light intensity rate levels off) so light is limiting / eq (1)</li> <li>• (at high light intensity) carbon dioxide limits rate / not enough carbon dioxide / eq (1)</li> </ul>	<p><b>Accept</b> temperature is limiting factor at low temperatures</p> <p><b>Accept</b> at high light intensity rate increases more as light is not limiting / eq</p> <p><b>Accept</b> rate levels off because temperature not limiting / eq</p> <p><b>Accept</b> at high light intensity rate is limited by other factors</p>	<b>3</b>

Question Number	Answer	Additional guidance	Mark
<b>9(c)</b>	<p>An answer that makes reference to five of the following points:</p> <ol style="list-style-type: none"> <li>1. light, carbon dioxide and (warm) temperature supplied / eq (1)</li> <li>2. so no factors for <u>photosynthesis</u> are limiting / all factors present for <u>photosynthesis</u> / there is more <u>photosynthesis</u> / eq (1)</li> <li>3. so high yield / fast production / (to give high profit) / more tomatoes / eq (1)</li> <li>4. no need to buy carbon dioxide / no need to buy electricity / wood is cheaper than fossil fuel / wood cheaper than buying electricity / eq (1)</li> <li>5. tomatoes protected from pests / disease / frost / cold / bad weather / eq (1)</li> <li>6. wood is renewable (energy) / eq (1)</li> <li>7. less use of fossil fuel / eq (1)</li> <li>8. carbon dioxide not released into atmosphere / eq (1)</li> <li>9. less greenhouse effect / less climate change / less ice cap melting / eq (1)</li> <li>10. less release of sulfur dioxide / less acid rain / eq (1)</li> </ol>	<p><b>Accept</b> crop for tomatoes</p> <p><b>Ignore</b> oxygen for photosynthesis</p> <p><b>Accept</b> higher productivity <b>Ignore</b> better quality</p> <p><b>Accept</b> other examples of greenhouse effects / fewer food miles / less need to import tomatoes / eq</p>	<b>5</b>

**Total 11 marks**

Question Number	Answer		Mark
<b>10</b>	<p>An answer that makes reference to six of the following points:</p> <ul style="list-style-type: none"> <li>• C change colour / eq (1)</li> <li>• O type of scarecrow / size of scarecrow / use same scarecrow / type of fabric / size of clothing / eq (1)</li> <li>• R repeat / eq (1)</li> <li>• M1 count number of birds / mass of crop / amount of birds / number of plants eaten / yield of crop / eq (1)</li> <li>• M2 stated period of time / eq (1)</li> <li>• S1 same time of year / season / area of field / position (of scarecrow) in field / weather / time of day / wind speed / light / water / humidity / temperature / eq (1)</li> <li>• S2 same crop / quality of crop / (starting) number of crops / fertiliser / pesticides / soil quality / soil pH / eq (1)</li> </ul>	<p><b>Accept</b> different coloured scarecrows / named colours</p> <p><b>Accept</b> ref to averages</p> <p><b>Accept</b> time taken to eat crops for M1 and M2</p> <p><b>Ignore</b> amount of crops</p> <p><b>Accept</b> same bird species</p> <p><b>Accept</b> named crop as same crop</p>	<b>6</b>

**Total 6 marks**