

Cambridge Technicals Health and Social Care

Unit 4: Anatomy and physiology for health and social care

Level 3 Cambridge Technical in Health and Social Care
05831 - 05833 & 05871

Mark Scheme for January 2024

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of candidates of all ages and abilities. OCR qualifications include AS/A Levels, Diplomas, GCSEs, Cambridge Nationals, Cambridge Technicals, Functional Skills, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

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MARKING INSTRUCTIONS

PREPARATION FOR ON-SCREEN MARKING

RM ASSESSOR

1. Make sure that you have accessed and completed the relevant training packages for on-screen marking: *RM Assessor Assessor Online Training*; *OCR Essential Guide to Marking*.
2. Make sure that you have read and understood the mark scheme and the question paper for this unit. These are posted on the RM Cambridge Assessment Support Portal <http://www.rm.com/support/ca>
3. Log-in to RM Assessor and mark the **required number** of practice responses (“scripts”) and the **number of required** standardisation responses.

PREPARATION FOR PAPER-BASED MARKING

MARKING

1. Mark strictly to the mark scheme.
2. Marks awarded must relate directly to the marking criteria.
3. The schedule of dates is very important. It is essential that you meet the RM Assessor 50% and 100% (traditional 40% Batch 1 and 100% Batch 2) deadlines. If you experience problems, you must contact your Team Leader (Supervisor) without delay.
4. If you are in any doubt about applying the mark scheme, consult your Team Leader by telephone or the RM Assessor messaging system, or by email.

5. Crossed Out Responses

Where a candidate has crossed out a response and provided a clear alternative then the crossed out response is not marked. Where no alternative response has been provided, examiners may give candidates the benefit of the doubt and mark the crossed out response where legible.

Rubric Error Responses – Optional Questions

Where candidates have a choice of question across a whole paper or a whole section and have provided more answers than required, then all responses are marked and the highest mark allowable within the rubric is given. Enter a mark for each question answered into RM assessor, which will select the highest mark from those awarded. *(The underlying assumption is that the candidate has penalised themselves by attempting more questions than necessary in the time allowed.)*

Multiple Choice Question Responses

When a multiple choice question has only a single, correct response and a candidate provides two responses (even if one of these responses is correct), then no mark should be awarded (as it is not possible to determine which was the first response selected by the candidate). *When a question requires candidates to select more than one option/multiple options, then local marking arrangements need to ensure consistency of approach.*

Contradictory Responses

When a candidate provides contradictory responses, then no mark should be awarded, even if one of the answers is correct.

Short Answer Questions (requiring only a list by way of a response, usually worth only **one mark per response**)

Where candidates are required to provide a set number of short answer responses then only the set number of responses should be marked. The response space should be marked from left to right on each line and then line by line until the required number of responses have been considered. The remaining responses should not then be marked. Examiners will have to apply judgement as to whether a 'second response' on a line is a development of the 'first response', rather than a separate, discrete response. *(The underlying assumption is that the candidate is attempting to hedge their bets and therefore getting undue benefit rather than engaging with the question and giving the most relevant/correct responses.)*

Short Answer Questions (requiring a more developed response, worth **two or more marks**)

If the candidates are required to provide a description of, say, three items or factors and four items or factors are provided, then mark on a similar basis – that is downwards (as it is unlikely in this situation that a candidate will provide more than one response in each section of the response space.)

Longer Answer Questions (requiring a developed response)

Where candidates have provided two (or more) responses to a medium or high tariff question which only required a single (developed) response and not crossed out the first response, then only the first response should be marked. Examiners will need to apply professional judgement as to whether the second (or a subsequent) response is a 'new start' or simply a poorly expressed continuation of the first response.

6. Always check the pages (and additional objects if present) at the end of the response in case any answers have been continued there. If the candidate has continued an answer there, then add a tick to confirm that the work has been seen.
7. Award No Response (NR) if:
 - there is nothing written in the answer space

Award Zero '0' if:

- anything is written in the answer space and is not worthy of credit (this includes text and symbols).













Team Leaders must confirm the correct use of the NR button with their markers before live marking commences and should check this when reviewing scripts.

8. The RM Assessor **comments box** is used by your team leader to explain the marking of the practice responses. Please refer to these comments when checking your practice responses. **Do not use the comments box for any other reason.**
If you have any questions or comments for your team leader, use the phone, the RM Assessor messaging system, or e-mail.
9. *Assistant Examiners will send a brief report on the performance of candidates to their Team Leader (Supervisor) via email by the end of the marking period. The report should contain notes on particular strengths displayed as well as common errors or weaknesses. Constructive criticism of the question paper/mark scheme is also appreciated.*

10. For answers marked by levels of response:
- To determine the level** – start at the highest level and work down until you reach the level that matches the answer
 - To determine the mark within the level**, consider the following

Descriptor	Award mark
On the borderline of this level and the one below	At bottom of level
Just enough achievement on balance for this level	Above bottom and either below middle or at middle of level (depending on number of marks available)
Meets the criteria but with some slight inconsistency	Above middle and either below top of level or at middle of level (depending on number of marks available)
Consistently meets the criteria for this level	At top of level

1. Annotations to be used when marking scripts.

Annotation	Meaning
	Correct response
	Incorrect response
	Positive
	Negative
	Level 1
	Level 2
	Level 3
	Omission mark
	Benefit of doubt given (this annotation counts as a mark so do not tick as well)
	Repeat
	Too vague
	Noted but no credit given

Question		Answer	Marks	Guidance												
1	(a)	<p>One mark per correct answer as shown in the table.</p> <table border="1"> <thead> <tr> <th>Statement</th> <th>Structure</th> </tr> </thead> <tbody> <tr> <td>A light-sensitive surface covering the back of the eye where rays of light focus.</td> <td>retina ✓</td> </tr> <tr> <td>A small area at the back of the eye that contains a high concentration of photoreceptors.</td> <td>macula ✓</td> </tr> <tr> <td>Can be adjusted by muscles to control the amount of light that enters the eye.</td> <td>iris ✓</td> </tr> <tr> <td>Can change shape to focus light rays entering the eye.</td> <td>lens ✓</td> </tr> <tr> <td>Watery fluids that keep the eye in shape.</td> <td>humours ✓</td> </tr> </tbody> </table>	Statement	Structure	A light-sensitive surface covering the back of the eye where rays of light focus.	retina ✓	A small area at the back of the eye that contains a high concentration of photoreceptors.	macula ✓	Can be adjusted by muscles to control the amount of light that enters the eye.	iris ✓	Can change shape to focus light rays entering the eye.	lens ✓	Watery fluids that keep the eye in shape.	humours ✓	<p>5 (5x1)</p>	<p>Do not accept any other answer</p> <p>If more than one answer is given in a box e.g. retina/macula: No mark should be awarded.</p>
Statement	Structure															
A light-sensitive surface covering the back of the eye where rays of light focus.	retina ✓															
A small area at the back of the eye that contains a high concentration of photoreceptors.	macula ✓															
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Can change shape to focus light rays entering the eye.	lens ✓															
Watery fluids that keep the eye in shape.	humours ✓															

Question	Answer	Marks	Guidance
1	<p>(b)*</p> <p>Level 3 (7–8 marks)</p> <ul style="list-style-type: none"> • detailed discussion of effects of cataracts AND impact on lifestyle • linked and relevant to cataracts with clear use of terms <p><i>There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.</i></p> <p>Level 2 (4–6 marks)</p> <ul style="list-style-type: none"> • sound discussion of effects of cataracts AND impact on lifestyle • mostly relevant to cataracts with some use of terms <p><i>There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.</i></p> <p>Sub max of 4 for effects or impacts on lifestyle done well.</p> <p>Level 1 (1–3 marks)</p> <ul style="list-style-type: none"> • Brief attempt at a discussion of effects of cataracts AND / OR impact on lifestyle but answer may be list like. <p>AND</p> <ul style="list-style-type: none"> • may not be linked to cataracts <p><i>There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.</i></p> <p>0 marks - No response worthy of credit.</p>	8	<p>Indicative points (not exhaustive):</p> <p>Effects of cataracts e.g.</p> <ul style="list-style-type: none"> • affects the lens • e.g. cloudy lens • e.g. cloudy patches • blurred vision / unclear vision • difficult to see in dim light / bright light • dazzled by bright lights • may be difficult to see colours / appear faded / brown tinge • double vision • trouble seeing at night • halo around lights • can lead to blindness <p>Impacts on lifestyle e.g.</p> <ul style="list-style-type: none"> • recovery period following surgery (surgery alone is TV) • need regular check-ups / appointments (time consuming) • inability to work • inability to take part in social activities • difficulty watching television • inability to use computer screen • problems reading • problems driving • may become housebound / fear of going out • mental health issues e.g. self-esteem / anxiety • greater risk of trips / falls

Question		Answer		Marks	Guidance
1	(c)			4 (4x1)	<p>Do not accept any other answer.</p> <p>If more than one answer is given e.g. T/F: No mark should be awarded.</p>
		Statement	True (T) or False (F)		
		Diabetes is diagnosed when tests show high concentrations of glucose in the blood.	True / T ✓		
		Insulin injections can be used to treat diabetes.	True / T ✓		
		Obesity is a risk factor for diabetes.	True / T ✓		
Type 2 diabetes can be caused by damage to cells in the kidney.	False / F ✓				

Question		Answer	Marks	Guidance
2	(a)	central ✓ spinal cord ✓ sensory ✓ synapse ✓	4 (4x1)	Do not accept any other answer. Answers must be in order shown here. If more than one answer is given in a space e.g. spinal cord/sensory: No mark should be awarded.
2	(b)	(i) <p>Three marks for the outline of biological cause of MS Any three marks from:</p> autoimmune disease ✓ immune system attacks neurones (nerve cell) / Schwann cells / myelin sheath ✓ damages myelin sheath ✓ inflammation occurs ✓ scar tissue is formed ✓ disrupts transmission of (nerve) impulses ✓	3 (1x3)	Do not accept risk factors e.g. genetics Must say immune system or white blood cells to be credited for this point. Your body attacks is TV

Question			Answer	Marks	Guidance
2	(b)	(ii)*	<p>Level 3 (7–8 marks)</p> <ul style="list-style-type: none"> detailed understanding of impacts on Charlie’s lifestyle, with explanation of why MS results in these impacts. <p>AND</p> <ul style="list-style-type: none"> Uses accurate terminology. <p><i>There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.</i></p> <p>Level 2 (4–6 marks)</p> <ul style="list-style-type: none"> sound understanding of impacts on Charlie’s lifestyle. <p>AND</p> <ul style="list-style-type: none"> Uses mostly accurate terminology. <p><i>There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.</i></p> <p>Level 1 (1–3 marks)</p> <ul style="list-style-type: none"> Brief attempt on the impacts on Charlie’s lifestyle but answer may be list like or unstructured. <p>AND</p> <ul style="list-style-type: none"> Attempts to use terminology but may not be accurate. <p><i>There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.</i></p> <p>0 marks - No response worthy of credit.</p>	8	<p>Impact of MS on daily life</p> <p>Examples of possible impacts on lifestyle (not exhaustive):</p> <ul style="list-style-type: none"> tiredness difficulty walking inability to do simple tasks side-effects of medication loss of independence frustration depression unable to do hobbies inability to work affects social activities have to attend appointments reliant on family / carer to help with tasks may need wheelchair. embarrassment / anxiety social isolation may become housebound <p>Explanations:</p> <ul style="list-style-type: none"> eyesight become blurred cognitive function impaired coordination / balance issues muscle stiffness mobility issues loss of bladder/bowel control loss of vision impulses are disrupted can be relapsing remitting / flare ups

Question			Answer	Marks	Guidance												
2	(c)	(i)	One mark for each correct answer, four required.	4 (4x1)	Do not accept any other answer. If more than one answer letter is given: No mark should be awarded.												
			<table border="1"> <thead> <tr> <th>Structure</th> <th>Letter</th> </tr> </thead> <tbody> <tr> <td>cerebellum</td> <td>V ✓</td> </tr> <tr> <td>cerebral cortex</td> <td>W ✓</td> </tr> <tr> <td>corpus callosum</td> <td>Z ✓</td> </tr> <tr> <td>hypothalamus</td> <td>Y</td> </tr> <tr> <td>medulla (oblongata)</td> <td>X ✓</td> </tr> </tbody> </table>			Structure	Letter	cerebellum	V ✓	cerebral cortex	W ✓	corpus callosum	Z ✓	hypothalamus	Y	medulla (oblongata)	X ✓
			Structure			Letter											
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			hypothalamus			Y											
medulla (oblongata)	X ✓																
2	(c)	(ii)	pituitary ✓	1 (1x1)	Do not accept any other answer. If more than one box is ticked: No mark should be awarded.												

Question			Answer	Marks	Guidance
2	(c)	(iii)*	<p>Level 3 (5–6 marks)</p> <ul style="list-style-type: none"> detailed description of both structures' role in control and coordination <p>AND</p> <ul style="list-style-type: none"> Clear use of terms <p><i>There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.</i></p> <p>Level 2 (3–4 marks)</p> <ul style="list-style-type: none"> sound description of both structures' role in control and coordination <p>AND</p> <ul style="list-style-type: none"> Some use of terms. <p><i>There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.</i></p> <p>Sub max of 3 for one structure done well.</p> <p>Level 1 (1–2 marks)</p> <ul style="list-style-type: none"> Brief attempt at a description on either or both structures role in control and coordination but may be list like or unstructured. <p>AND</p> <ul style="list-style-type: none"> May not use accurate terms. <p><i>There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.</i></p> <p>0 marks - No response worthy of credit.</p>	6	<p>Indicative points (not exhaustive):</p> <p>Cerebellum e.g.</p> <ul style="list-style-type: none"> coordinates and regulates muscle action fine motor skills gross motor skills walking writing maintaining balance posture speech <p>cerebral cortex e.g.</p> <ul style="list-style-type: none"> processing sensory information thinking memory emotions perception decision making language consciousness

Question		Answer	Marks	Guidance
2	(d)	fixed ✓	1 (1x1)	ALLOW immoveable or fibrous If more than one answer is provided: Mark the first response only.

Question			Answer	Marks	Guidance
3	(a)	(i)	pleural membrane ✓	1 (1x1)	For an incorrect answer use the cross . No other answers are acceptable. If more than one answer is given e.g. bronchiole/bronchus: No mark should be awarded.
3	(a)	(ii)	trachea ✓	1 (1x1)	For an incorrect answer use the cross . No other answers are acceptable. If more than one answer is given e.g. bronchiole/bronchus: No mark should be awarded.
3	(a)	(iii)	bronchiole ✓	1 (1x1)	For an incorrect answer use the cross . No other answers are acceptable. If more than one answer is given e.g. bronchiole/bronchus: No mark should be awarded.
3	(a)	(iv)	larynx ✓	1 (1x1)	For an incorrect answer use the cross . No other answers are acceptable. If more than one answer is given e.g. bronchiole/bronchus: No mark should be awarded.

Question			Answer	Marks	Guidance
3	(b)	(i)	<p>ANY TWO FROM:</p> <p>Adaptation of alveoli:</p> <ul style="list-style-type: none"> many of them / numerous <p>Explanation for role in gas exchange:</p> <ul style="list-style-type: none"> increases amount of gaseous exchange taking place <p>Adaptation of alveoli:</p> <ul style="list-style-type: none"> large surface area <p>Explanation for role in gas exchange:</p> <ul style="list-style-type: none"> increases surface over which gaseous exchange can take place so increases exchange <p>Adaptation of alveoli:</p> <ul style="list-style-type: none"> thin walls / walls are one cell thick <p>Explanation for role in gas exchange:</p> <ul style="list-style-type: none"> shortens distance for gases to pass through / shortens diffusion distance <p>Adaptation of alveoli:</p> <ul style="list-style-type: none"> lined with fluid / water <p>Explanation for role in gas exchange:</p> <ul style="list-style-type: none"> gases dissolve into fluid to increase exchange <p>Adaptation of alveoli:</p> <ul style="list-style-type: none"> surrounded by capillary network <p>Explanation for role in gas exchange:</p> <ul style="list-style-type: none"> gases cross easily to and from blood stream 	<p>4 (2x2)</p>	<p>Two marks: An adaptation identified with an explanation that shows understanding</p> <p>One mark: An adaptation identified with little or no explanation.</p> <p>Only mark the first two adaptation</p> <p>Alveoli are thin is TV (must link to walls)</p>

Question			Answer	Marks	Guidance
3	(b)	(ii)*	<p>Level 3 (5–6 marks)</p> <ul style="list-style-type: none"> • detailed explanation of effects of emphysema on the body <p>AND</p> <ul style="list-style-type: none"> • linked and relevant to emphysema with clear use of terms <p><i>There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.</i></p> <p>Level 2 (3-4 marks)</p> <ul style="list-style-type: none"> • sound explanation of effects of emphysema on the body <p>AND</p> <ul style="list-style-type: none"> • mostly relevant to emphysema with some use of terms <p><i>There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.</i></p> <p>Level 1 (1–2 marks)</p> <ul style="list-style-type: none"> • brief attempt at explanation of effects of emphysema on the body <p>AND</p> <ul style="list-style-type: none"> • may not be linked to emphysema and answer may be list like <p><i>There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.</i></p> <p>0 marks - No response worthy of credit.</p>	6	<p>For levels 2 and 3 effects must include explanations</p> <p>Indicative points (not exhaustive):</p> <p>Effects:</p> <ul style="list-style-type: none"> • shortness of breath / difficulty breathing / wheezing • tightness in chest • persistent cough • mucus / phlegm in cough • sputum is yellow • frequent chest infections • symptoms do not improve / worsen • weight loss • fatigue / tiredness • reduced cognitive function • cyanosis (blue fingers and lips) <p>Explanations:</p> <ul style="list-style-type: none"> • airways are obstructed / narrowed • airways are inflamed • air sacs / alveoli lose their shape / elasticity • larger air spaces in lungs • not enough air getting into lungs • less surface area for gaseous exchange • less / ineffective gas exchange • air trapping • less oxygen transfer to the blood

Question			Answer	Marks	Guidance
3	(b)	(iii)	ANY ONE FROM: <ul style="list-style-type: none"> • physiotherapy / breathing exercises • oxygen therapy / oxygen cylinders • lung transplant / bullectomy (lung volume reduction) • anti-inflammatory medication / steroids • inhalers / /bronchodilators 	1 (1x1)	Any one treatment for one mark. If more than one answer is provided: Mark the first response only. Surgery and medication alone are TV
3	(c)		plasma ✓	1 (1x1)	No other answers are acceptable. If more than one box is ticked: No mark should be awarded.

Question			Answer		Marks	Guidance
3	(d)	(i)	Structure	Letter on diagram	4 (4x1)	No other answers are acceptable. If more than one answer letter is given: No mark should be awarded.
			Aorta	J ✓		
			Bicuspid valve	M ✓		
			Left atrium	L ✓		
			Pulmonary artery	K		
			Right ventricle	O ✓		

Question			Answer	Marks	Guidance
3	(d)	(ii)*	<p>Level 3 (5–6 marks)</p> <ul style="list-style-type: none"> detailed description of heart action, linked and relevant to the three terms given. <p>AND</p> <ul style="list-style-type: none"> clear use of terms <p><i>There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.</i></p> <p>Level 2 (3–4 marks)</p> <ul style="list-style-type: none"> sound description of heart action that is mostly relevant to three terms given. <p>AND</p> <ul style="list-style-type: none"> some use of terms <p><i>There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.</i></p> <p>Level 1 (1–2 marks)</p> <ul style="list-style-type: none"> brief attempt at description of heart action that may not be linked to terms <p>AND</p> <ul style="list-style-type: none"> answer may be list like <p><i>There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.</i></p> <p>0 marks - No response worthy of credit.</p>	6	<p>Indicative points (not exhaustive):</p> <p>Double pump ref:</p> <ul style="list-style-type: none"> double circulation/blood pass through the heart twice in a full circuit of the body one circuit to lungs / pulmonary circulation one circuit to body / systemic circulation oxygenated and deoxygenated blood separated right side deoxygenated blood left side oxygenated blood <p>systole ref:</p> <ul style="list-style-type: none"> atrial systole both atria contract at same time push blood into ventricles ventricular systole both ventricles contract at same time blood from left ventricle pushed out to body blood from right ventricle pushed out to lungs <p>diastole ref:</p> <ul style="list-style-type: none"> muscle of the atria and ventricles relax heart refills with blood <p>others:</p> <ul style="list-style-type: none"> deoxygenated blood pumped from heart to lungs deoxygenated blood returns from body to heart oxygenated blood pumped from heart to body oxygenated blood returns to heart from lungs

Question			Answer	Marks	Guidance
3	(e)	(i)	Any one CHD medication from: <ul style="list-style-type: none">• statins / cholesterol lowering drugs• ACE inhibitors• nitrates• anti-coagulants / blood thinners / aspirin / warfarin• angina pump• calcium channel blockers• beta blockers• blood pressure medication	1 (1x1)	Any one medication for one mark. For an incorrect answer use the cross . If more than one answer is provided: Mark the first response only.

Question			Answer	Marks	Guidance
3	(e)	(ii)	<p>Two marks for a description. One monitoring method required.</p> <p>Monitoring method:</p> <ul style="list-style-type: none"> • blood tests <p>Description:</p> <ul style="list-style-type: none"> • blood samples taken to check levels of e.g. protein / cholesterol / fats <p>Monitoring method:</p> <ul style="list-style-type: none"> • ECG / electrocardiogram <p>Description:</p> <ul style="list-style-type: none"> • electrodes attached to the chest • which measures electrical activity of heart / heart rhythm cardiac cycle • can detect abnormalities / damage to heart muscle <p>Monitoring method:</p> <ul style="list-style-type: none"> • angiogram <p>Description:</p> <ul style="list-style-type: none"> • wire passed from artery in wrist/thigh into the heart • dye is injected • blood vessels shown on special x-ray machine • shows narrowed arteries in the heart 	<p>2 (1x2)</p>	<p>Two marks: A monitoring method identified and description that shows understanding.</p> <p>One mark: A monitoring method identified with little or no description OR description of method with incorrect / no method identified.</p>

Question			Answer	Marks	Guidance
3	(e)	(iii)	ANY ONE FROM: <ul style="list-style-type: none">• smoking• obesity / overweight• diabetes• hypertension / high blood pressure• high cholesterol levels / high fat diet• genetics / family history• ageing• inactivity• excessive alcohol consumption• stress	1 (1x1)	Any one risk factor for one mark. If more than one answer is provided: Mark the first response only.

Question		Answer	Marks	Guidance												
4	(a)	<p>One mark for each correct answer, four required.</p> <table border="1"> <thead> <tr> <th>Function</th> <th>Liver OR Pancreas</th> </tr> </thead> <tbody> <tr> <td>Assimilating glucose into cells</td> <td>Liver ✓</td> </tr> <tr> <td>Deaminating amino acids</td> <td>Liver ✓</td> </tr> <tr> <td>Producing bile to emulsify fats</td> <td>Liver ✓</td> </tr> <tr> <td>Producing digestive enzymes</td> <td>Pancreas ✓</td> </tr> <tr> <td>Producing hormones to regulate blood glucose</td> <td>Pancreas</td> </tr> </tbody> </table>	Function	Liver OR Pancreas	Assimilating glucose into cells	Liver ✓	Deaminating amino acids	Liver ✓	Producing bile to emulsify fats	Liver ✓	Producing digestive enzymes	Pancreas ✓	Producing hormones to regulate blood glucose	Pancreas	4 (4x1)	<p>No other answers are acceptable.</p> <p>If more than one answer is given: No mark should be awarded.</p>
Function	Liver OR Pancreas															
Assimilating glucose into cells	Liver ✓															
Deaminating amino acids	Liver ✓															
Producing bile to emulsify fats	Liver ✓															
Producing digestive enzymes	Pancreas ✓															
Producing hormones to regulate blood glucose	Pancreas															
4	(b)	(i)	<p>Two marks for a description. One required.</p> <ul style="list-style-type: none"> villi / finger-like projections have become flattened / damaged / shorter / less surface area 	2 (1x2)	<p>Two marks: Identifies villi and a description of change to lining of small intestine.</p> <p>One mark: A change to lining of small intestine identified with little or no description OR identifies that villi line the small intestines.</p>											

Question			Answer	Marks	Guidance
4	(b)	(ii)	Any two marking points from: e.g. <ul style="list-style-type: none">• less absorption of nutrients• due to reduced surface area• into the blood stream / lacteals• nutrients can't be assimilated / can't be taken into cells• cells don't receive nutrients e.g. glucose for respiration	2 (1x2)	Two marks for an explanation.

Question	Answer	Marks	Guidance
4 (c)*	<p>Level 3 (5–6 marks)</p> <ul style="list-style-type: none"> detailed description of social and dietary impacts that is linked and relevant to coeliac’s disease. <p>AND</p> <ul style="list-style-type: none"> clear use of terms <p><i>There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.</i></p> <p>Level 2 (3–4 marks)</p> <ul style="list-style-type: none"> sound description of social and dietary impacts that is mostly relevant to coeliac’s disease. <p>AND</p> <ul style="list-style-type: none"> some use of terms <p><i>There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.</i></p> <p>Sub max of 3 if social impacts or dietary impacts done well.</p> <p>Level 1 (1–2 marks)</p> <ul style="list-style-type: none"> brief attempt at description of social AND/OR dietary impacts that may not be linked to coeliac’s disease. <p>AND</p> <ul style="list-style-type: none"> may be list like <p><i>There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.</i></p> <p>0 marks - No response worthy of credit.</p>	6	<p>(not exhaustive):</p> <p>Social impacts e.g.</p> <ul style="list-style-type: none"> must take care when eating out in restaurants / cafes must take care when getting takeaway meals must take care when eating with friends / family may become isolated fear / anxious of eating out embarrassment <p>Dietary impacts e.g.</p> <ul style="list-style-type: none"> can’t eat wheat products gluten-free diet need to read menus carefully need to read food labels carefully can’t use e.g. oil which has had gluten products in it named digestive problem e.g. anaemia / osteoporosis must take vitamin / mineral supplements gluten free food is more expensive

Question			Answer	Marks	Guidance
5	(a)	(i)*	<p>Level 3 (5–6 marks)</p> <ul style="list-style-type: none"> detailed explanation for causes and effects that are linked and relevant to osteoporosis <p>AND</p> <ul style="list-style-type: none"> clear use of term <p><i>There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.</i></p> <p>Level 2 (3–4 marks)</p> <ul style="list-style-type: none"> sound explanation for causes and effects that is mostly relevant to osteoporosis. <p>AND</p> <ul style="list-style-type: none"> some use of terms <p><i>There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.</i></p> <p>Level 1 (1–2 marks)</p> <ul style="list-style-type: none"> attempt at explanation with cause and/or effects <p>AND</p> <ul style="list-style-type: none"> may be description or list like <p><i>There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.</i></p> <p>0 marks - No response worthy of credit</p>	6	<p>(not exhaustive) points are interchangeable and do not need to be separated but some explanation required</p> <p>e.g. caused by</p> <ul style="list-style-type: none"> ageing menopause decline in oestrogen / testosterone medication e.g. cancer drugs lifestyle e.g. diet low in dairy products eating disorder e.g. anorexia lack of exercise low peak bone mass genetic inheritance e.g. poor bone density coeliac disease long term alcohol abuse <p>e.g. explanations</p> <ul style="list-style-type: none"> loss of bone density / enlarge holes in bones loss of proteins in bone loss in bone strength osteoblast activity lower than osteoclast <p>e.g. effects</p> <ul style="list-style-type: none"> brittle / weak bones bones that break easily curvature of spine

Question			Answer	Marks	Guidance
5	(a)	(ii)	<p><u>load-bearing exercise</u> For / positive:</p> <ul style="list-style-type: none"> • increase / maintain bone density ✓ • strengthens muscles and bone ✓ • additional overall health benefits ✓ • falls less likely ✓ <p>Against / negative:</p> <ul style="list-style-type: none"> • injury ✓ • may be difficult if have other conditions / if immobile ✓ • requires willpower ✓ <p><u>bone strengthening medication and supplements</u> For / positive:</p> <ul style="list-style-type: none"> • increase / maintain bone density ✓ • calcium / vitamin D tablets readily available ✓ • vitamin D helps absorption of calcium • easy to take e.g. tablet form ✓ • relatively inexpensive ✓ <p>Against / negative:</p> <ul style="list-style-type: none"> • problems taking supplements e.g. at same time / remembering to take them ✓ • take a long time to work / long time to see benefits ✓ • named side effects; stomach pain / digestive issues / headaches / fatigue ✓ <p><u>hormone therapy</u> For / positive:</p> <ul style="list-style-type: none"> • increase / maintain bone density ✓ • increase oestrogen levels ✓ • increase osteoblast activity ✓ • HRT can also help with menopausal symptoms ✓ • parathyroid hormone regulates calcium in body ✓ <p>Against / negative:</p> <ul style="list-style-type: none"> • HRT can only be used for women ✓ • parathyroid only used when other treatments don't work ✓ • named side effects e.g. nausea ✓ • increased risk of developing other conditions e.g. cancer / blood clots ✓ 	3 (1x3)	<p>Three marks: a sound evaluation that includes at least three statements including BOTH positive AND negative statements for one of the treatments for osteoporosis</p> <p>Two marks: an evaluation that includes a positive and negative statement OR at least two positive or negative statements for one of the treatments</p> <p>One mark: one statement about one treatment for osteoporosis</p> <p>only credit first treatment covered</p>

Question		Answer	Marks	Guidance										
5	(b)	<p>One mark for each correct answer, three required.</p> <table border="1"> <thead> <tr> <th>component</th> <th>function</th> </tr> </thead> <tbody> <tr> <td>cartilage</td> <td>Maintains joint stability</td> </tr> <tr> <td>Synovial capsule</td> <td>Attaches muscle to bone</td> </tr> <tr> <td>Synovial fluid</td> <td>Reduces friction</td> </tr> <tr> <td>tendon</td> <td>Lubricates the joint</td> </tr> </tbody> </table>	component	function	cartilage	Maintains joint stability	Synovial capsule	Attaches muscle to bone	Synovial fluid	Reduces friction	tendon	Lubricates the joint	<p>3 (3x1)</p>	<p>One mark per link. DO NOT ACCEPT: more than one link between boxes.</p>
component	function													
cartilage	Maintains joint stability													
Synovial capsule	Attaches muscle to bone													
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