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 June 2025

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.

MARKING INSTRUCTIONS

PREPARATION FOR MARKING
RM ASSESSOR

1. Make sure that you have accessed and completed the relevant training packages for on-screen marking: *RM 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 available in RM Assessor

3. Log-in to RM Assessor and mark the **required number** of practice responses ("scripts") and the **required number** of standardisation responses.

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, email or via the RM Assessor messaging system.

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 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 the annotation 'SEEN' to confirm that the work has been seen and mark any responses

using the annotations in section 11.

7. There is a NR (**No Response**) option. Award NR (No Response):

   - if there is nothing written at all in the answer space
   - OR if there is a comment which does not in any way relate to the question (e.g., 'can't do', 'don't know')
   - OR if there is a mark (e.g., a dash, a question mark) which is not an attempt at the question.

   Note: Award 0 marks – for an attempt that earns no credit (including copying out the question).

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.**

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: Not applicable in F501
    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

Annotations available for marking of scripts

Annotation	Meaning
	Tick – correct answer
	Cross – incorrect answer
L1	Level 1
L2	Level 2
L3	Level 3
BOD	Benefit of doubt (This **does** count as a mark – so **do not 'tick'** as well)
^	Omission mark
TV	Too vague
REP	Repeat
SEEN	To acknowledge additional pages/ notes were read
	Not Relevant - 'noted but no credit given'
BP	Blank Page

DO NOT USE ANY OTHER ANNOTATION

Question			Answer	Marks	Guidance
1	(a)	(i)	capillary ✓	1 (1x1)	**ACCEPT** phonetic spelling
1	(a)	(ii)	erythrocyte ✓	1 (1x1)	No other responses are acceptable If more than one box is ticked, no mark
1	(a)	(iii)	Any **three** points from below as part of an explanation for **three** marks: -diffusion is movement of molecules from an area of high concentration to low concentration ✓ -the greater the diffusion gradient the greater the rate of diffusion ✓ -there is a low concentration of oxygen / high concentration of carbon dioxide in blood ✓ -and a high concentration of oxygen / low concentration of carbon dioxide in the alveoli ✓ -so oxygen moves (down concentration gradient/high to low concentration) from the alveoli to blood ✓ -and carbon dioxide moves (down concentration gradient/high to low concentration) from the blood to alveoli ✓	3 (1x3)	**ALLOW** alternative wording throughout e.g. concentration of oxygen in alveoli is higher than in blood **ALLOW** CO_2 for carbon dioxide and O_2 for oxygen throughout Does not need to cover both oxygen and carbon dioxide to gain full marks ***Don't give credit for simply stating oxygen moves from alveoli to capillaries (or vice versa for carbon dioxide). Responses must reference differences in concentrations for this to be awardable.***

Question			Answer	Marks	Guidance
1	(b)*		Please refer to the marking instructions on page 4 of this mark scheme for guidance on how to mark this question. **Level 3 (5-6 marks)** Detailed discussion that includes similarities **AND** differences between aerobic and anaerobic respiration *There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.* **Level 2 (3-4 marks)** Detailed discussion that includes similarities **OR** differences between aerobic and anaerobic respiration **OR** Sound discussion that includes similarities **AND** differences between aerobic and anaerobic respiration *There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.* **Level 1 (1–2 marks)** Limited discussion that includes similarities **AND/OR** differences between aerobic and anaerobic respiration Lists some statements about aerobic **OR** anaerobic respiration *There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.* **0 marks** *No response or no response worthy of credit.*	**6**	**Indicative points (not exhaustive):** **Similarities** • **BOTH** Use/require glucose • **BOTH** produce ATP • **BOTH** require ADP • **BOTH** require a phosphate molecule **Differences** • aerobic requires oxygen but anaerobic doesn't • aerobic provides **more** ATP than anaerobic • aerobic provides 32-36 ATP but anaerobic only provides 2 ATP • aerobic produces carbon dioxide, anaerobic does not • aerobic produces water anaerobic does not • anaerobic produces lactate/lactic acid, aerobic does not • aerobic and anaerobic respiration takes in different parts of a cell • aerobic takes place in mitochondria (and cytoplasm), but anaerobic takes place in cytoplasm. ***Comparative statements are required for a credit to be awarded*** *For example "aerobic uses oxygen" (alone this is TV)* ***If equations alone are provided L1 only***

Question			Answer	Marks	Guidance
1	(c)	(i)	Any **one** risk factor of emphysema for **one** mark from: exposure to **airborne** chemicals ✓ exposure to dust/fumes/second-hand smoke ✓ (air) pollution ✓ genetics/family history ✓ **older** age ✓	1 (1x1)	**ALLOW** other correct causes **IGNORE** smoking tobacco (in question stem) chemicals must be airborne ***don't credit vapes*** age alone is TV
1	(c)	(ii)	**Two** marks for a biological cause for emphysema symptom explained inflammation of bronchi/bronchioles ✓ lumen/airways become narrower ✓ airflow is reduced ✓ **OR** damage to alveoli ✓ less sites/surface area for gaseous exchange ✓ less oxygen transferred into the blood ✓ **OR** loss of elasticity of bronchioles/airways ✓ causing air trapping ✓ reducing lung volume/capacity/tidal volume ✓	2 (1x2)	**ALLOW** alternative wording throughout e.g. more difficult to exhale **ALLOW airways for bronchi/bronchioles**

Question			Answer	Marks	Guidance
1	(c)	(iii)	Any **one** treatment for **one** mark from: bronchodilators ✓ oxygen therapy/tank ✓ medication to reduce inflammation/ steroids ✓ lung transplant ✓	1 (1x1)	**ALLOW** other correct treatments Inhalers alone is TV Medication alone is TV Surgery alone is TV **Accept the first response only** Don't accept lifestyle changes

Question			Answer	Marks	Guidance
2	(a)		<table><tr><th>Structure</th><th>Letter on diagram</th></tr><tr><td>bone marrow</td><td>**C** ✓</td></tr><tr><td>cartilage</td><td>**D**</td></tr><tr><td>compact bone</td><td>**B** ✓</td></tr><tr><td>spongy bone</td><td>**A** ✓</td></tr></table>	3 (3x1)	No other responses are acceptable If more than one response provided for a structure, no mark.

Question			Answer	Marks	Guidance
2	(b) *		Please refer to the marking instructions on page 4 of this mark scheme for guidance on how to mark this question. **Level 3 (5-6 marks)** Detailed explanation of how muscles around elbow joint cause movement *There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.* **Level 2 (3-4 marks)** Sound explanation of how muscles around elbow joint cause movement e.g. may only explain movement caused by one muscle *There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.* **Level 1 (1–2 marks)** Limited explanation / simple list of statements *There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.* **0 marks** *No response or no response worthy of credit.*	**6**	**Indicative points (not exhaustive):** **Points may include:** • muscles work in **antagonistic** pairs • one muscle contracts (agonist) • whilst the other muscle relaxes (antagonist) • muscles switch roles in order to produce opposite movement. • muscles can only pull/muscles can't push • muscles pull on/attached to bone by tendons Bending/Flexion of the arm • bicep contracts (agonist) • triceps relaxes (antagonist) • forearm moves towards the shoulder Straightening/Extension of the arm • triceps contracts (agonist) • bicep relaxes (antagonist) • forearm moves away from the shoulder Do not credit statement like "**the biceps contract**", without reference to either movement of the forearm or working pairs is required. **Explanation of muscle action must be applied to the elbow joint**

<table>
<tr><th colspan="3">Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>2</td><td>(c)</td><td></td><td>
<table>
<tr><th rowspan="2">Statement</th><th colspan="3">Tick (✓) each correct box</th></tr>
<tr><th>Arthritis only</th><th>Osteoporosis only</th><th>Both</th></tr>
<tr><td>Risk of developing the malfunction increases with age.</td><td></td><td></td><td>✓</td></tr>
<tr><td>Characterised by loss of bone density.</td><td></td><td>✓</td><td></td></tr>
<tr><td>Inflammation or injury results in loss of cartilage.</td><td>✓</td><td></td><td></td></tr>
<tr><td>Steroid injections can be used to treat swollen joints.</td><td>✓</td><td></td><td></td></tr>
</table>
</td><td>3
(3x1)</td><td>If more than one box ticked for a statement, no mark.</td></tr>
<tr><td>2</td><td>(d)</td><td></td><td>cerebellum / cerebral cortex ✓
cerebellum ✓
corpus callosum ✓
meninges ✓</td><td>4
(4x1)</td><td>Answers must be in correct order

If more than one component provided for a statement, no mark.</td></tr>
</table>

Question			Answer	Marks	Guidance
2	(e) *		Please refer to the marking instructions on page 4 of this mark scheme for guidance on how to mark this question. **Level 3 (7-8 marks)** **Two** symptoms described **and** detailed explanation of causes (ischaemic **/** haemorrhagic) for stroke symptoms. *There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.* **Level 2 (4-6 marks)** **One or two** symptoms described **and** sound explanation of causes (ischaemic **/** haemorrhagic) for stroke symptoms. OR **Two** symptoms described **OR** detailed explanation of causes (ischaemic **/** haemorrhagic) for stroke symptoms. *There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.* **Level 1 (1-3 marks)** Limited or basic description of a symptom **and/or** causes for stroke symptoms. *There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.* **0 marks** *No response or no response worthy of credit.*	**8**	**Indicative points may include (not exhaustive):** ***Possible symptoms described*** • **Face** - may drop to one side • **Arms** - may not be able to lift them • **Speech** - garbled or slurred speech • **Balance** -poor coordination / issues walking • **Communication issues** - May not be able to communicate / understand • **Difficulty swallowing** - dysphagia, requires thickening agents **Accept** other correct symptoms e.g. memory loss, **severe** headache (headache alone is TV) etc **IGNORE** dizziness/confusion as these are in question stem ***Possible explanations for symptoms:*** • **haemorrhagic stroke** / cerebral haemorrhage • weak blood vessel • aneurysm • blood vessel bursts in brain / skull • bleeding in brain / and build-up of pressure • which damages cells • **ischaemic stroke** • obstruction in blood vessel in the brain • plaques / fatty deposits (atheroma) narrow the blood vessels • blood clot forms • which block the blood vessels • restricts blood flow to brain • oxygen supply is reduced **Accept** other explanations of **symptoms** e.g. damage nerves, disruption of messages/signals, muscle weakness

Question			Answer	Marks	Guidance
3	(a)		ear drum ✓ round window ✓ cochlea ✓ auditory nerve ✓ ampullae ✓	5 (5x1)	Answers must be in correct order If more than one response provided in a space, no mark.
3	(b)	(i)	Any **one** from causes damage to structures in inner ear (cochlea / organ of corti / auditory nerve) ✓ perforated/damaged ear drum ✓	1 (1x1)	

Question			Answer	Marks	Guidance
3	(b)	(ii)*	Please refer to the marking instructions on page 4 of this mark scheme for guidance on how to mark this question. **Level 3 (7-8 marks)** Detailed discussion of impacts linked to hearing loss. *There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.* **Level 2 (4-6 marks)** Sound discussion of impacts linked to hearing loss. *There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.* **Level 1 (1-3 marks)** Limited or basic discussion-may be list-like *There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.* **0 marks** *No response or no response worthy of credit.*	**8**	**Impact of hearing loss on daily life** **Examples of possible impacts (not exhaustive):** Medical/care impacts • regular monitoring of hearing loss/audiology assessments • need to wear and maintain hearing aids eg regular charging of aids or changing of batteries • regular clearing of ears of ear wax • care needs as follow up to surgery e.g. for implants • need for assistive technology e.g. for home / workplace Communication impacts • may need to learn sign language • may need to learn lip reading Work/educational impacts • change role • adapt working environment • impact on educational attainment • days of work/school Social / Emotional impacts • loss of independence • frustration as can no longer take part in conversation or listen to music / radio • reduction in social activities may cause depression • coping with loneliness due to difficulties with joining in conversation

<table>
<tr><th colspan="3">Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>4</td><td>(a)</td><td>(i)</td><td>gallbladder ✓</td><td>1
(1x1)</td><td>If more than one structure identified, mark the first structure only.</td></tr>
<tr><td>4</td><td>(a)</td><td>(ii)</td><td>bile duct ✓</td><td>1
(1x1)</td><td>If more than one structure identified, mark the first structure only.</td></tr>
<tr><td>4</td><td>(b)</td><td></td><td>
<table>
<tr><th>Statement</th><th>True (T) or False (F)</th></tr>
<tr><td>Bile is an enzyme that chemically digests fats.</td><td>False or F ✓</td></tr>
<tr><td>Bile helps in digestion by emulsifying proteins.</td><td>False or F ✓</td></tr>
<tr><td>Bile helps in digestion by neutralising stomach acid.</td><td>True or T ✓</td></tr>
</table>
</td><td>3
(3x1)</td><td>No other answers are acceptable.

If more than one answer is given e.g. T/F:
No mark should be awarded.</td></tr>
</table>

Question			Answer	Marks	Guidance
4	(c)*		Please refer to the marking instructions on page 4 of this mark scheme for guidance on how to mark this question. **Level 3 (5-6 marks)** Detailed discussion of impacts of gallstones on diet **and** lifestyle *There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.* **Level 2 (3-4 marks)** Sound discussion of impacts of gallstones on diet **and** lifestyle **Or** Detailed discussion of impacts of gallstones on diet **or** lifestyle *There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.* **Level 1 (1-2 marks)** Limited or basic discussion of impacts of gallstones on diet **OR** lifestyle *There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.* **0 marks** *No response or no response worthy of credit.*	**6**	**Indicative points may include (not exhaustive):** **Impact on diet:** • moderate intake of fats / cholesterol in diet • healthy balanced diet (5 a day, fruit and veg, fibre) • eat smaller portions • regular mealtimes • food swaps e.g. olive oil for butter • loss of appetite • may need to take supplements • low fat cooking method e.g. steaming rather than frying • reduce processed food **Impact on lifestyle:** • may not have symptoms so little impact • attend medical appointment • may have increase in abdominal/stomach pain • referred pain • sometimes feel nausea / sickness • may get recurrent infections • may need surgery which may cause other side effects • lose weight if overweight/maintain healthy weight • frustration • isolation • work issues • e.g. diarrhoea / constipation / bloating • can lead normal life without gallbladder

Question			Answer	Marks	Guidance
4	(d)		Any **three** points from below as part of an outline for **three** marks: produces pancreatic juice / enzymes ✓ pancreatic juice / enzymes enters small intestine via pancreatic duct ✓ pancreatic juice contains enzymes ✓ enzyme breaks down, proteins / fats / carbohydrates ✓ pancreatic juice are alkaline ✓ pancreatic juice neutralises stomach acid ✓	3 (1x3)	Credit named enzymes and the food substances they breakdown e.g. amylase breaks down carbohydrates (two marks)
4	(e)	(i)	Any **two** points from below as part of a description for **two** marks: breakdown of amino acids (proteins) ✓ amine group is removed ✓ ammonia is produced ✓ performed by hepatocytes cells ✓	2 (1x2)	
4	(e)	(ii)	Any **one** from: ammonia to urea / produces urea ✓ breaks down alcohol / removes alcohol from blood ✓ breaks down drugs e.g. paracetamol ✓	1 (1x1)	**ALLOW** other correctly named drugs
4	(f)	(i)	cirrhosis ✓	1 (1x1)	**ALLOW** other correct liver malfunctions e.g. hepatitis Liver disease alone is TV

Question			Answer	Marks	Guidance
4	(f)	(ii)	Any **two** from: nausea ✓ vomiting (blood) ✓ weight loss ✓ jaundice / yellowing of skin ✓ oedema / swelling / ascites✓ itchy skin ✓ insomnia ✓ bleeding ✓ fatigue ✓ bruising ✓ confusion / cognitive issues ✓ abdominal pain ✓ bloating ✓ breathing difficulties ✓	2 (2x1)	**ALLOW** other correct symptoms of liver malfunction
4	(f)	(iii)	excess alcohol intake ✓ **and** hepatitis C infection ✓	2 (2x1)	**ALLOW eating disorders such as anorexia** No other answers are acceptable. If more than two boxes ticked, no mark

Question			Answer	Marks	Guidance
5	**(a)**	**(i)**	semi-lunar ✓	1 (1x1)	No other answers are acceptable. If more than one structure identified, no mark
5	**(a)**	**(ii)**	pulmonary vein ✓ aorta ✓	2 (2x1)	No other answers are acceptable. **ALLOW** any order If more than two structures identified, no mark
5	**(a)**	**(iii)**	atrium ✓	1 (1x1)	No other answers are acceptable. If more than one structure identified, no mark

Question			Answer	Marks	Guidance
5	(b) *		Please refer to the marking instructions on page 4 of this mark scheme for guidance on how to mark this question. **Level 3 (5-6 marks)** Detailed description of roles of SAN **and** AVN **and** Purkyne fibres *There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.* **Level 2 (3-4 marks)** Limited description of roles of SAN **and** AVN **and** Purkyne fibres **OR** Detailed description of roles of any **two** from: SAN **,** AVN Purkyne fibres *There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.* **Level 1 (1-2 marks)** Limited or basic description of roles of SAN **or** AVN **or** Purkyne fibres *There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.* **0 marks** *No response or no response worthy of credit.*	**6**	**Indicative points may include:** **SAN** • located in upper wall of heart • in right atrium • acts as pacemaker • initiates the cardiac cycle • sets heart rhythm • ensures atria contract (simultaneously) **AVN** • located at bottom of right atrium • receives impulse from SAN • delays impulse received • this ensures there is time for all blood to leave atria **Purkyne fibres** • located in ventricle walls • specialised heart muscle fibres • conduct nerve impulses through ventricle walls • causes ventricles to contract

Question			Answer	Marks	Guidance
5	(c)	(i)	Any **one** risk factor from: ageing ✓ family history /genetics ✓ excessive alcohol ✓ lack of exercise ✓ obesity ✓ high salt diet ✓ smoking ✓ stress ✓ ethnicity ✓ drug abuse ✓ high fat diet ✓	1 (1x1)	**ALLOW** other correct risk factors Age alone is TV Alcohol alone is TV
5	(c)	(ii)	Any **two** from below as part of an outline for **two** marks: Measure/check blood pressure ✓ using blood pressure monitor / sphygmomanometer ✓ measures systolic / diastolic readings ✓ 120 / 80mmHg (is healthy) ✓ can identify if blood pressure is too high/low ✓	2 (1x2)	Do not credit attend appointments (alone) or band around the arm (alone)

<table>
<tr><th colspan="3">Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>5</td><td>(d)</td><td>(i)</td><td>
<table>
<tr><th>Part of endocrine system</th><th>Letter on diagram</th><th>Function</th></tr>
<tr><td>pancreas</td><td>Y</td><td>Produces insulin to control blood glucose levels ✓</td></tr>
<tr><td>Adrenal gland</td><td>Z</td><td>Produces adrenalin (as response to threat) ✓ ✓</td></tr>
<tr><td>pituitary</td><td>W</td><td>Produces hormones that help to regulate other endocrine glands ✓</td></tr>
<tr><td>thyroid</td><td>X</td><td>Produces thyroxine (that affects growth / metabolism) ✓</td></tr>
</table>
</td><td>5
(5x1)</td><td>If more than one response provided in a space, no mark</td></tr>
<tr><td>5</td><td>(d)</td><td>(ii)</td><td>maintenance of a constant internal environment / maintain optimum conditions within the body ✓</td><td>1
(1x1)</td><td>ALLOW alternative wording

Don’t credit examples that do not explain what homeostasis is e.g. regulate temperature (alone) is TV</td></tr>
</table>

Question			Answer	Marks	Guidance
5	(e)*		Please refer to the marking instructions on page 4 of this mark scheme for guidance on how to mark this question. **Level 3 (5-6 marks)** Detailed explanation of causes of type 1 **and** type 2 diabetes *There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.* **Level 2 (3-4 marks)** Sound explanation of causes of type 1 **and** type 2 diabetes **OR** Detailed explanation of causes of type 1 **OR** type 2 diabetes *There is a line of reasoning presented with some structure. The information presented is relevant and supported by some evidence.* **Level 1 (1-2 marks)** Limited explanation of causes of type 1 **OR** type 2 diabetes **OR** a generic explanation of diabetes *There is an attempt at a logical structure with a line of reasoning. The information is in the most part relevant.* **0 marks** *No response or no response worthy of credit.*	6	**Indicative points may include:** **Type 1 diabetes** • autoimmune disease-body cells attacked by own immune system • can be triggered by a virus • genetic factors can predispose the development of the condition • (beta) cells within the pancreas are destroyed • insulin can no longer be produced / insufficient amounts • glucose in blood is not regulated / goes very high **Type 2 diabetes** • lifestyle factors e.g. obesity / overweight, high fat diet, high sugar diet, inactivity • insulin resistance (cell receptors don't respond to insulin) • insufficient glucose enters cells • more insulin produced as a response • eventually pancreas can stop producing insulin **Generic responses about diabetes (e.g. statements not linked to type 1 or 2) limits the response to L1** **Do not credit responses linked to the wrong type of diabetes e.g. type 2 is autoimmune**

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