

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 2023

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 PREPARATION

PREPARATION FOR 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.

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

Annotations available for marking of scripts

Annotation	Meaning
	Tick – correct answer
	Cross – incorrect answer
	Level 1
	Level 2
	Level 3
	Benefit of doubt (This does count as a mark – so do not ‘tick’ as well)
	Omission mark
	Too vague
	Repeat
	To acknowledge additional pages/ notes were read
	Not Relevant - ‘noted but no credit given’
	Blank Page

DO NOT USE ANY OTHER ANNOTATION

Question			Answer	Marks	Guidance										
1	(a)		<table border="1"> <thead> <tr> <th>Component</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Autonomic nervous system</td> <td>Connected to the brain by nerves. Allows communication between the brain and the body.</td> </tr> <tr> <td>Central nervous system</td> <td>Consists of sensory and motor neurons that transmit nerve impulses to and from the brain and spinal cord. ✓</td> </tr> <tr> <td>Peripheral nervous system</td> <td>Consists of the brain and spinal cord. Takes a main role in control and coordination of most body functions. ✓</td> </tr> <tr> <td>Spinal cord</td> <td>Regulates body functions that are not consciously controlled such as breathing and heart rate. ✓</td> </tr> </tbody> </table>	Component	Function	Autonomic nervous system	Connected to the brain by nerves. Allows communication between the brain and the body.	Central nervous system	Consists of sensory and motor neurons that transmit nerve impulses to and from the brain and spinal cord. ✓	Peripheral nervous system	Consists of the brain and spinal cord. Takes a main role in control and coordination of most body functions. ✓	Spinal cord	Regulates body functions that are not consciously controlled such as breathing and heart rate. ✓	3 (3x1)	
Component	Function														
Autonomic nervous system	Connected to the brain by nerves. Allows communication between the brain and the body.														
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Spinal cord	Regulates body functions that are not consciously controlled such as breathing and heart rate. ✓														
1	(b)	(i)	<u>hypothalamus</u> ✓	1 (1x1)	If two responses given in one space, no mark even if first response correct.										
1	(b)	(ii)	<u>cerebral cortex</u> ✓ <u>frontal lobes</u> ✓	2 (2x1)	ACCEPT in any order If two responses given in one space, no mark even if first response correct.										
1	(b)	(iii)	<u>medulla</u> ✓	1 (1x1)	If two responses given in one space, no mark even if first response correct.										
1	(c)	(i)	ANY TWO POINTS FROM: <ul style="list-style-type: none"> • layer around Schwann cells ✓ • lined with fatty substance ✓ • wrapped around axon ✓ • has Nodes of Ranvier ✓ 	2 (2x1)	If two responses given in one space, no mark even if first response correct.										

Question			Answer	Marks	Guidance
1	(c)	(ii)*	<p>Level 3 (7-8 marks) Description of two symptoms of MS AND detailed explanation why.</p> <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) Description of one or two symptoms of MS. AND limited explanation why. OR Description of two symptoms of MS. OR Detailed explanation of damage</p> <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) Description of one symptom of MS. OR Limited explanation why OR Lists symptoms</p> <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 <i>No response or no response worthy of credit.</i></p>	8	<p>Possible symptoms of MS (not exhaustive):</p> <ul style="list-style-type: none"> • fatigue • muscle spasms/cramps • numbness and tingling • problems with mobility • tremors • pain • depression and anxiety • problems with thinking • loss of balance • bladder issues • blurred vision • memory loss/cognitive issues • coordination issues <p>explanations why damage causes symptoms:</p> <ul style="list-style-type: none"> • autoimmune disease • white blood cells attack the myeline sheath • inflammation of area • lesions occur • scar tissue forms (at site of damage) • axon no longer protected • break down of insulating layer • disruption of nerve impulses • slows down messages/ impulses • stops transmission of impulses completely • leads to permanent nerve damage <p>DON'T accept “myelin sheath is damage”</p>

Question			Answer	Marks	Guidance
2	(a)	(i)	regulates other endocrine organs ✓	1 (1x1)	If two boxes tick, no mark
2	(a)	(ii)	ANY THREE POINTS FROM: <ul style="list-style-type: none"> • insulin produced ✓ • insulin released into blood ✓ • insulin can lower blood glucose levels ✓ • allows blood glucose to move into cells ✓ • causes liver to convert blood glucose into glycogen and store it ✓ • stops/reduces the release of insulin if blood glucose levels are low • glucagon produced ✓ • glucagon can raise blood glucose levels ✓ • glucagon causes liver to convert stored glycogen into glucose and release into the blood ✓ 	3	ACCEPT other relevant points e.g. negative feedback mechanism e.g. maintains homeostasis ACCEPT blood sugar for blood glucose Pancreas regulates glucose is TV DON'T credit contradictory responses
2	(b)	(i)	ANY TWO symptoms FROM: <ul style="list-style-type: none"> • thirsty ✓ • tired/fatigue ✓ • frequent urination ✓ • unexplained weight loss ✓ • slow healing of wounds ✓ • blurred vision ✓ • high blood glucose (sugar) levels ✓ • dizziness ✓ • hunger ✓ 	2 (2x1)	ACCEPT other correct symptoms BOD weight loss If two or more responses given in one space, mark first response only However, if two responses given in the first space, but the second space left blank. Credit both responses.

Question			Answer	Marks	Guidance
2	(b)	(ii)*	<p>Level 3 (7-8 marks) Detailed discussion of at least two impacts of diabetes on lifestyle</p> <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) Sound discussion of at least one or two impacts of diabetes on lifestyle</p> <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) Limited discussion that may just include a list of impacts of diabetes.</p> <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 <i>No response or no response worthy of credit.</i></p>	8	<p>Possible impacts of diabetes (not exhaustive) :</p> <p>e.g. physical impacts</p> <ul style="list-style-type: none"> • tired all the time • increased risk of infection • risk of retinopathy • vision loss • kidney failure • limb amputation <p>e.g. social / emotional impacts</p> <ul style="list-style-type: none"> • may become house bound • issues with injecting before meals e.g. in public • may affect ability to work • loss of independence • frustration • embarrassed • depression • socializing issues e.g. drinking, eating out <p>e.g. other impacts</p> <ul style="list-style-type: none"> • must monitor blood glucose levels regularly • frequent blood testing • need to inject insulin • need to attend clinics/ regular appointments • regular exercise • healthy eating • may affect mobility <p>ACCEPT other appropriate impacts</p> <p><i>Impacts can both be from one area e.g. physical, but must be clearly separate impacts for L3</i></p>

Question		Answer	Marks	Guidance								
2	(c)	<p>Type: Type 2 ✓ AND Any one cause from:</p> <ul style="list-style-type: none"> • cells (body) stop responding to insulin/insulin resistance ✓ • insulin receptors become lined with fatty material ✓ • pancreas stops producing insulin ✓ • insulin stop working properly ✓ 	2	<p>TWO MARKS Name AND state one cause</p> <p>ONE MARK Name OR state one cause</p> <p>DON'T accept risk factors e.g. obesity</p> <p>If malfunction incorrect, don't credit cause</p>								
2	(d)	<table border="1"> <thead> <tr> <th>Statement</th> <th>True or False</th> </tr> </thead> <tbody> <tr> <td>(Pancreatic juices are secreted through the pancreatic duct.)</td> <td>True ✓</td> </tr> <tr> <td>(Produces digestive enzymes that are secreted into the stomach).</td> <td>False ✓</td> </tr> <tr> <td>(Produces hydrochloric acid to kill bacteria.)</td> <td>False ✓</td> </tr> </tbody> </table>	Statement	True or False	(Pancreatic juices are secreted through the pancreatic duct.)	True ✓	(Produces digestive enzymes that are secreted into the stomach).	False ✓	(Produces hydrochloric acid to kill bacteria.)	False ✓	3 (3x1)	<p>ACCEPT: Yes/no, tick/cross, T/F for true/false</p> <p>If two responses given to a statement, no mark</p>
Statement	True or False											
(Pancreatic juices are secreted through the pancreatic duct.)	True ✓											
(Produces digestive enzymes that are secreted into the stomach).	False ✓											
(Produces hydrochloric acid to kill bacteria.)	False ✓											
2	(e)	(i) <u>Liver</u> ✓	1 (1x1)	If more than one box ticked, no mark								
2	(e)	(ii) ANY TWO functions FROM: <ul style="list-style-type: none"> • helps body digest fat / breakdowns fat ✓ • splits large fat droplets into smaller droplets / emulsification of fats ✓ • neutralises chyme / stomach acid ✓ 	2 (2x1)	If two or more responses given in one space, mark first response only								
2	(f)	(i) ANY TWO symptoms FROM: <ul style="list-style-type: none"> • abdominal (stomach) pain ✓ • jaundice / yellow skin/eyes ✓ • loss of appetite ✓ • vomiting ✓ • excessive sweating ✓ • fever • digestive issues e.g. diarrhoea, constipation, bloating, flatulence ✓ 	2 (2x1)	<p>Pain alone TV</p> <p>If two or more responses given in one space, mark first response only</p>								

Question			Answer	Marks	Guidance
2	(f)	(ii)*	<p>Level 3 (5-6 marks) Detailed explanation of possible causes and risk factors for gallstones.</p> <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) Sound explanation of possible causes for gallstones and risk factors.</p> <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) Limited explanation of possible causes for gallstones OR risk factors.</p> <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 <i>No response or no response worthy of credit.</i></p>	6	<p>Possible causes (not exhaustive):</p> <p>Biological causes</p> <ul style="list-style-type: none"> • high cholesterol levels • high levels of bilirubin • chemical imbalance of bile • tiny crystals develop • crystals grow into larger ‘stones’ • bile duct can become blocked / stones trapped in bile duct • gall bladder doesn’t empty properly • change in gall bladder function <p>Lifestyle risk factors</p> <ul style="list-style-type: none"> • high fat diet • excess alcohol (alcohol/drinking alone is TV) • cirrhosis • obesity (BOD overweight) • starvation or ‘crash’ diets • sedentary lifestyle • diet high in processed foods / meat / junk food • low vegetable diet <p>DON’T accept age, gender and family history as not lifestyle factors.</p>

Question		Answer	Marks	Guidance
3	(a)	<p><u>muscle</u> ✓ <u>thinner</u> ✓ <u>low</u> ✓ <u>veins</u> ✓</p>	4	<p>DO NOT ACCEPT words in any other order</p> <p>If two responses given in one space, no mark even if first response correct.</p>
3	(b)*	<p>Level 3 (5-6 marks) Detailed discussion of at least two impacts on health AND two lifestyle changes</p> <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) Sound discussion of at least one impact on health AND one lifestyle change</p> <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) Limited discussion of one impact on health AND/OR one lifestyle change</p> <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 <i>No response or no response worthy of credit.</i></p>	6	<p>Possible impacts of hypertension on health and changes to lifestyle (not exhaustive):</p> <p>e.g. physical impacts (effect on health)</p> <ul style="list-style-type: none"> • increased risk of CHD • heart attack • increased risk of stroke • damage/burst blood vessels • increased risk of kidney disease • aneurysm • retinopathy • erectile dysfunction in males <p>e.g. (lifestyle changes)</p> <ul style="list-style-type: none"> • must monitor blood pressure regularly • regular exercise • reduce salt intake • reduce fat intake • reduce/stop smoking • reduce/stop alcohol intake • reduce stress/relaxation • lose weight • change job <p>healthy diet alone is TV</p> <p>DON'T credit emotional/social impacts</p>

Question			Answer	Marks	Guidance										
3	(c)	(i)	<table border="1"> <thead> <tr> <th>Structure</th> <th>Letter</th> </tr> </thead> <tbody> <tr> <td>(bone marrow)</td> <td>(W)</td> </tr> <tr> <td>(lymph node)</td> <td>X ✓</td> </tr> <tr> <td>(lymph organ)</td> <td>Z ✓</td> </tr> <tr> <td>(lymph vessel)</td> <td>Y ✓</td> </tr> </tbody> </table>	Structure	Letter	(bone marrow)	(W)	(lymph node)	X ✓	(lymph organ)	Z ✓	(lymph vessel)	Y ✓	3 (3x1)	If two letter given for a structure, no mark
			Structure	Letter											
			(bone marrow)	(W)											
			(lymph node)	X ✓											
			(lymph organ)	Z ✓											
(lymph vessel)	Y ✓														
3	(c)	(ii)	ANY ONE role FROM: <ul style="list-style-type: none"> • drainage ✓ • filtration ✓ • absorbs products of fat digestion ✓ • absorbs fatty acids ✓ • absorbed insoluble vitamins and minerals • removes excess fluid from tissues ✓ • role in immune response, fight infection, produce anti-bodies 	1 (1x1)	If two or more responses given in one space, mark first response only										
3	(d)	(i)	<u>vertical</u> ✓	1 (1x1)	ACCEPT <u>longitudinal</u> ACCEPT phonetic spelling										
3	(d)	(ii)	<u>cartilage</u> ✓	1 (1x1)	ACCEPT phonetic spelling										
3	(e)	(i)	ANY ONE cause FROM: <ul style="list-style-type: none"> • genetic/family history ✓ • low peak bone mass ✓ • eating disorder e.g. anorexia ✓ • certain medication e.g. corticosteroids ✓ • Lack of calcium in diet ✓ • Lack of vitamin D • menopause /low oestrogen ✓ • imbalance of osteoclast / osteoblast activity ✓ • coeliac disease ✓ 	1 (1x1)	Poor diet/lack of vitamins is TV Accept other correct causes e.g. sedentary lifestyle, smoking, old age, female, excessive alcohol intake ✓ Drinking alone is TV										

Question			Answer	Marks	Guidance
3	(e)	(ii)	ANY TWO FROM: <ul style="list-style-type: none">• less dense / loss of density ✓• weaker ✓• brittle/bone break easily ✓• thinner ✓• enlarged holes	2 (2x1)	DON'T accept holes alone If two responses given on one line credit first response only If two correct responses given on one line, but other response is blank credit both answers

Question		Answer	Marks	Guidance
3	(e) (iii)*	<p>Level 3 (5-6 marks) Detailed analysis of two treatments for osteoporosis including characteristics or features of the treatment and reasoned comment on effectiveness/issues.</p> <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) Detailed analysis of one treatment for osteoporosis including characteristics or features of the treatment and reasoned comment on effectiveness/issues.</p> <p>OR Limited analysis of two treatments for osteoporosis including one of the following: characteristics/features or comment on effectiveness/issues</p> <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) Limited analysis of one treatment for osteoporosis with one of the following: characteristics/features or comment on effectiveness/issues</p> <p>OR Basic description of two or more treatments.</p> <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 <i>No response or no response worthy of credit.</i></p>	6	<p>Possible treatments for osteoporosis (not exhaustive):</p> <p>Calcium or vitamin D supplements</p> <ul style="list-style-type: none"> • supplements the diet • diet high in vitamin C • help improve bone density • vit D helps absorb calcium • strengthens bone • helps prevent bone fractures • possible side effects • expense • is not a cure <p>Exercise/Physiotherapy</p> <ul style="list-style-type: none"> • Exercise that strengthens muscles • Weight bearing exercise • Done when standing/upright so bones and muscles work against gravity • benefits overall health • minimizes effects of osteoporosis • help maintain bone density • risk of other injury <p>Hormone Replacement Therapy (HRT)</p> <ul style="list-style-type: none"> • Tablets, gels or patches • Increases osterogen/progesterone • Increases osteoblasts • Stimulates bone production • Reducing loss of bone density • risk of breast cancer • risk of blood clots <p>ACCEPT any other correct treatments e.g. bisphosphonates</p> <p>credit the first two treatments only</p>

Question		Answer		Marks	Guidance
4	(a)	Description	Structure	4 (4x1)	ACCEPT phonetic spelling If two responses given in one space, no mark even if first response correct.
		(Changes the shape of the lens to enable the eye to focus).	ciliary_muscle_✓		
		(Produces fluid to clean and lubricate the front of the eye).	tear gland_✓		
		(Thin membrane that covers and protects the surface of the eye.)	conjunctiva ✓		
		(Transparent front part of the eye).	cornea_✓		

Question	Answer	Marks	Guidance
4 (b)*	<p>Level 3 (5-6 marks) Detailed explanation of how changes in two structures lead to eye malfunctions. Each structure is clearly linked to a named malfunction.</p> <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) Detailed explanation of how changes in two structures lead to eye malfunction. Not clearly linked to malfunctions. OR Detailed explanation of how changes in one structure lead to eye malfunction. Structure is clearly linked to a named malfunction.</p> <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) Limited explanation of how changes in one/two structure leads to eye malfunction OR names an eye malfunction.</p> <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 <i>No response or no response worthy of credit.</i></p>	6	<p>Possible changes in structures and link to eye malfunction (not exhaustive):</p> <p>1 Retina named malfunction:</p> <ul style="list-style-type: none"> • retinopathy <p>change/damage /deterioration:</p> <ul style="list-style-type: none"> • high blood glucose levels • high blood pressure • damage to blood vessels in retina • blood vessels in retina leak blood • cells of retina destroyed • scar tissue develops • blood clots develop <p>1 Retina named malfunction:</p> <ul style="list-style-type: none"> • age-related macular degeneration <p>change/damage /deterioration:</p> <ul style="list-style-type: none"> • sight loss occurs gradually over time • dry (develops slowly) • wet (develops quickly) • blood vessels leak fluid/blood into the macula <p>2 Lens: named malfunction:</p> <ul style="list-style-type: none"> • cataracts <p>change/damage /deterioration:</p> <ul style="list-style-type: none"> • result of ageing • result of disease or infection • crystals form in the lens • cloudy patches develop on lens • lens changes • lens becomes less transparent • less light passes through the lens/reaches the back of the eye

Question			Answer	Marks	Guidance
4	(c)	(i)	ANY ONE cause FROM: <ul style="list-style-type: none"> • prolonged exposure to loud noises ✓ • earwax/blocked ear canal ✓ • infection / disease e.g. measles, glue ear ✓ • perforated ear drum ✓ • damage to hair cells in cochlea ✓ • damage to auditory nerve ✓ • head injury/stroke ✓ • Genetic or born with hearing loss ✓ • Extreme ear trauma ✓ • Osteoporosis (lack of bone density in the ossicles) 	1 (1x1)	DO NOT ACCEPT ageing ACCEPT other correct causes of deafness or hearing loss Loud noises alone is TV If two or more responses given, mark first response only
4	(c)	(ii)	ANY TWO effects on lifestyle FROM: <ul style="list-style-type: none"> • difficulty hearing conversation ✓ • difficulty hearing telephone ringing ✓ • difficulty hearing voices on the telephone ✓ • having to turn up TV / radio ✓ • need for hearing aid ✓ • loss of employment ✓ • Isolation ✓ • Emotional impacts e.g. frustration ✓ • Social impacts e.g. isolation ✓ • Have to learn sign language ✓ 	2 (2x1)	ACCEPT other examples of lifestyle effects of hearing loss If two or more responses given in one space, mark first response only
4	(c)	(iii)	ANY ONE treatment FROM: <ul style="list-style-type: none"> • ear drops ✓ • hearing aid ✓ • cochlea implants ✓ • syringing of ears ✓ • antibiotics ✓ • grommets ✓ 	1 (1x1)	ACCEPT other examples of treatments for hearing loss BOD removal of earwax If two or more responses given in one space, mark first response only

Question			Answer	Marks	Guidance
5	(a)	(i)	ANY TWO FROM: <ul style="list-style-type: none"> • very thin / only one cell thick ✓ • folded ✓ • large surface area ✓ • lined with liquid / fluid / surfactant ✓ 	2 (2x1)	If two responses given on one line credit first response only If two correct responses given on one line, but other response is blank credit both answers
5	(a)	(ii)	ANY TWO POINTS FROM: <ul style="list-style-type: none"> • oxygen moves down concentration gradient ✓ • high concentration of oxygen in air in alveoli ✓ • low concentration of oxygen in blood ✓ • oxygen moves from area of high concentration to low concentration ✓ 	2 (2x1)	Doesn't need to say oxygen, as the term is used in the question. DON'T credit air or carbon dioxide DON'T credit oxygen moves from the alveoli to the capillaries
5	(a)	(iii)	<u>erythrocyte</u> ✓ OR <u>red blood cell</u> ✓	1 (1x1)	Accept first response only Accept haemoglobin

5	Question	Answer	Marks	Guidance
	(b) (i)*	<p>Level 3 (5-6 marks) Detailed analysis of at least two methods for monitoring respiratory malfunctions and reasoned comment on effectiveness/issues.</p> <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) Attempt at analysis of at least one method for monitoring respiratory malfunctions and reasoned comment on effectiveness/issues. OR Attempt at analysis of two methods for monitoring respiratory malfunctions</p> <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) Limited analysis. May be one monitoring method only or simple list of methods without detail</p> <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 <i>No response or no response worthy of credit.</i></p>	6	<p>Possible methods for monitoring respiratory malfunction (not exhaustive):</p> <p><u>spirometry</u></p> <ul style="list-style-type: none"> • monitors lung function • measures lung volume • measures volume of air breathed out • patient breathes in and out using mouthpiece • detailed information on lung function • quick results • requires an appointment <p><u>peak flow meter</u></p> <ul style="list-style-type: none"> • monitors how well lungs can expel air • used regularly to measure forced rate of expiration • indicates constriction or dilation of airways • portable easy to use device • can perform test yourself/at home • one maximal breath for peak flow • limited information on lung function <p><u>scans</u></p> <ul style="list-style-type: none"> • MRI, CT, X-rays • provide images of respiratory system • show over inflation of lungs/flattened diaphragm • monitor progression of the condition • issues with claustrophobia • anxiety • requires appointments /time consuming • wait for results <p>Blood oxygen saturation test</p> <ul style="list-style-type: none"> • blood test/oximeter • measure blood oxygen saturation levels • pain (blood test) • fear of needles (blood test) • instant results (oximeter) • can perform at home (oximeter)

Question			Answer	Marks	Guidance
5	(b)	(ii)	<p>ANY ONE cause FROM:</p> <ul style="list-style-type: none"> • smoking ✓ • fumes ✓ • dust ✓ • chemicals ✓ • air pollution ✓ <p>ANY TWO OUTLINE STATEMENTS FROM:</p> <ul style="list-style-type: none"> • alveoli damaged ✓ • alveoli / air sacs become inflamed/swollen ✓ • alveoli over- inflate ✓ • loss to elasticity of alveoli/airways ✓ • airways / alveoli / air sacs collapse ✓ • surface area of walls of alveoli reduced ✓ • air trapping ✓ • reduced gaseous exchange/oxygen transfer to blood ✓ 	<p>3 (3x1)</p>	<p><u>THREE MARKS:</u> named cause AND TWO outline statements</p> <p><u>TWO MARKS:</u> named cause AND ONE outline statements</p> <p>OR</p> <p>TWO outline statements</p> <p><u>ONE MARK:</u> named cause</p> <p>OR</p> <p>ONE outline statement</p> <p>Credit first cause only</p>

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