

**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
05830 – 05833

Mark Scheme for January 2021

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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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Annotations – These are the annotations to be used when marking Unit 4:

Annotation	Meaning
	Tick – correct answer
	Cross – incorrect answer
	Plus – use for positives
	Minus – use for negatives
	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
 or 	Noted but no credit given

Question			Answer	Marks	Guidance
1	(a)	(i)	<p>One mark for an identification, one required.</p> <ul style="list-style-type: none"> adrenal <p>Do not accept: adrenalin</p>	1 (1x1)	<p>Annotation: The number of ticks must match the number of marks awarded.</p> <p>For incorrect answers use the cross or appropriate annotation from the following:</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;">   </div>
1	(a)	(ii)	<p>One mark for an identification, one required.</p> <ul style="list-style-type: none"> insulin 	1 (1x1)	<p>No other answers are acceptable.</p> <p>Annotation: The number of ticks must match the number of marks awarded.</p>
1	(a)	(iii)	<p>One mark for an identification, one required.</p> <ul style="list-style-type: none"> pituitary 	1 (1x1)	<p>For incorrect answers use the cross.</p> <p>No other answers are acceptable.</p>
1	(a)	(iv)	<p>One mark for an identification, one required.</p> <ul style="list-style-type: none"> pituitary 	1 (1x1)	<p>If multiple responses are given for each question, mark as incorrect.</p>

Question			Answer	Marks	Guidance
1	(b)	(i)	<p>One mark for a function, two required</p> <p>Endocrine functions:</p> <ul style="list-style-type: none"> • produces insulin. • which lowers blood sugar (glucose) levels. • produces glucagon. • which increases blood sugar (glucose) levels. • controls/regulates blood sugar (glucose) levels. 	<p>2 (2x1)</p>	<p>Annotation: The number of ticks must match the number of marks awarded.</p> <p>For incorrect answers use the cross or appropriate annotation from the following:</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;">   </div> <p>If more responses provided as each answer, mark the first response only. If they say “produces insulin which lowers blood sugar levels” (this is worth 2 marks)</p>
1	(b)	(ii)	<p>One mark for a function, two required</p> <p>Digestive function:</p> <ul style="list-style-type: none"> • produces enzymes (lipase and amylase). • which break down food (fat/carbohydrate/protein) molecules. • produces pancreatic juice. • which neutralises stomach acid/chyme. • and also breaks down food (fat/carbohydrate/protein) 	<p>2 (2x1)</p>	<p>Annotation: The number of ticks must match the number of marks awarded.</p> <p>For incorrect answers use the cross or appropriate annotation from the following:</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;">   </div> <p>If more responses provided as each answer, mark the first response only. If they say “produces enzymes which break down food (fat/carbohydrate/protein) molecules” (this is worth 2 marks).</p>

Question		Answer	Marks	Guidance												
1	(c)	<p>One mark for correct identification, five required.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Structure</th> <th>Letter</th> </tr> </thead> <tbody> <tr> <td>Pancreatic duct</td> <td>C</td> </tr> <tr> <td>Stomach</td> <td>B</td> </tr> <tr> <td>Bile duct</td> <td>D</td> </tr> <tr> <td>Gall bladder</td> <td>E</td> </tr> <tr> <td>Oesophagus</td> <td>A</td> </tr> </tbody> </table>	Structure	Letter	Pancreatic duct	C	Stomach	B	Bile duct	D	Gall bladder	E	Oesophagus	A	<p>5 (5x1)</p>	<p>Annotation: The number of ticks must match the number of marks awarded.</p> <p>For incorrect answers use the cross.</p> <p>No other answers are acceptable.</p> <p>DO NOT ALLOW multiple letters given in a box.</p> <p>If multiple letters are provided in each answer box: 0 marks.</p>
Structure	Letter															
Pancreatic duct	C															
Stomach	B															
Bile duct	D															
Gall bladder	E															
Oesophagus	A															
1	(d)	<p>One mark for each correct answer, six required.</p> <p>The answers must be given as ordered below to complete the sentences in the passage.</p> <ul style="list-style-type: none"> • churns • mechanical • acid • enzyme • protein • chemical 	<p>6 (6x1)</p>	<p>Annotation: The number of ticks must match the number of marks awarded.</p> <p>For incorrect answers use the cross.</p> <p>No other answers are acceptable.</p> <p>If more than response is provided in each answer space: 0 marks</p>												

Question	Answer/Indicative Content	Marks	Guidance	
			Content	Levels of response
1 (e)*	<p><i>Discuss the possible impacts of cirrhosis on Nina's lifestyle.</i></p> <p>Physical impacts tiredness, jaundice, swelling of legs, side-effects of medication, ascites etc could result in:</p> <ul style="list-style-type: none"> • work issues • problems exercise • inability to perform personal care. • becoming housebound • might have to exercise more • eat a healthier diet <p>Emotional / mental impacts loss of independence, itchy skin, waiting for transplant or surgery, requiring care from family members etc could result in:</p> <ul style="list-style-type: none"> • frustration • depression • insomnia • guilt <p>Communication impacts memory loss and confusion could result in:</p> <ul style="list-style-type: none"> • isolation • inability to express feeling <p>Social impacts</p> <ul style="list-style-type: none"> • changes in diet (can't eat out with friends) • inability to work (no contact with colleagues) • stop drinking (can't go out with friends) <p>Examples of possible impacts on lifestyle (not exhaustive)</p>	8	<p>This is a levels of response question – marks are awarded on the quality of the response given. The focus of the question is discuss.</p> <p>Annotation: The number of ticks will not necessarily correspond to the marks awarded.</p> <p>Level 3 checklist:</p> <ul style="list-style-type: none"> • At least two different types of impact • Fully detailed discussion • Well-developed, clear and logically structured • Factually accurate & relevant • Correct use of terminology • QWC – high <p>Level 2 checklist:</p> <ul style="list-style-type: none"> • Two different types of impact • Sound discussion • Mostly relevant and accurate information • QWC - mid <p>Level 1 checklist:</p> <ul style="list-style-type: none"> • Limited / basic discussion • Basic information • Limited structure, may be list like or muddled • QWC – low 	<p>Level 3 [7-8 marks] Answers provide a detailed discussion of impacts using accurate terminology and following a logical sequence. Sentences and paragraphs are relevant with accurate use of appropriate terminology There will be few, if any, errors of grammar, punctuation and spelling.</p> <p>Level 2 [4-6 marks] The answer provides a sound discussion of two different types of impact. Answers will be factually accurate and mostly relevant. There may be some errors of grammar, punctuation and spelling. Sub-max of 4 if only one impact done well.</p> <p>Level 1 [1-3 marks] Answer provides a limited or basic discussion of impacts. May be a description / identification only. Answers may be list like, muddled, demonstrating little knowledge or understanding. Errors of grammar and spelling may be noticeable and intrusive.</p> <p>0 marks – response not worthy of credit.</p> <p>SEEN for a zero mark response</p>

Question		Answer	Marks	Guidance												
2	(a)	<p>One mark for correct identification, four required.</p> <table border="1"> <thead> <tr> <th>Structure</th> <th>Letter</th> </tr> </thead> <tbody> <tr> <td>Synovial capsule</td> <td>Q</td> </tr> <tr> <td>Cartilage</td> <td>S</td> </tr> <tr> <td>Synovial fluid</td> <td>T</td> </tr> <tr> <td>Tendon</td> <td>R</td> </tr> <tr> <td>Bone</td> <td>U</td> </tr> </tbody> </table>	Structure	Letter	Synovial capsule	Q	Cartilage	S	Synovial fluid	T	Tendon	R	Bone	U	<p>4 (4x1)</p>	<p>Annotation: The number of ticks must match the number of marks awarded.</p> <p>For incorrect answers use the cross.</p> <p>No other answers are acceptable.</p> <p>DO NOT ALLOW multiple letters given in a box.</p> <p>If multiple letters are provided in each answer box: 0 marks.</p>
Structure	Letter															
Synovial capsule	Q															
Cartilage	S															
Synovial fluid	T															
Tendon	R															
Bone	U															
2	(b)	<p>One mark for correct identification, two required.</p> <ul style="list-style-type: none"> • ball and socket • pivot • sliding/gliding • fixed • condyloid • saddle 	<p>2 (2x1)</p>	<p>Annotation: The number of ticks must match the number of marks awarded.</p> <p>For incorrect answers use the cross or appropriate annotation from the following:</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;">  </div> <p>Do not accept: hinge</p> <p>If more responses provided as each answer, mark the first response only.</p>												

Question			Answer	Marks	Guidance
2	(c)	(i)	<p>One mark for malfunction and one mark for associated symptom</p> <p>Malfunction: Osteoarthritis</p> <p>Symptoms:</p> <ul style="list-style-type: none"> • painful joints (pain alone is too vague) • stiff joints • limited range of movement • swelling joints <p>Malfunction: Rheumatoid arthritis</p> <p>Symptoms:</p> <ul style="list-style-type: none"> • painful joints • stiff joints • swelling of joints • limited range of movement <p>Malfunction: Osteoporosis</p> <p>Symptoms:</p> <ul style="list-style-type: none"> • bones fracture easily (brittle/weak bones is too vague) • loss of height • curvature of spine • loss of hearing <p><i>Don't accept difficulties in walking or pain for osteoporosis, as they are a result of a fracture not the disease itself</i></p> <p>Lists of symptoms are not exhaustive, accept other correct, appropriate symptoms.</p>	<p>2 (2x1)</p>	<p>Annotation: The number of ticks must match the number of marks awarded.</p> <p>For incorrect answers use the cross or appropriate annotation from the following:</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> ^ TV REP SEEN </div> <p>If more responses provided as each answer, mark the first response only.</p> <p>Accept arthritis and symptoms</p>

Question			Answer/Indicative Content	Marks	Guidance	
					Content	Levels of response
2	(c)	(ii)*	<p><i>For the malfunction you have identified in (c)(i) explain the impact on the daily life of an individual suffering from this condition.</i></p> <p>General effects of all conditions</p> <ul style="list-style-type: none"> • may have side-effects due to medication • have to change routine to attend appointments • need to change diet to improve symptoms • may become housebound due to immobility/pain (for osteoporosis must link to fractures) • inability to work could result in financial issues e.g. debt. <p>Osteoarthritis</p> <ul style="list-style-type: none"> • need to take exercise to keep joints moving • problems with daily activities e.g. preparing meals due to stiff joints • pain causes issues sleep and psychological effects • abnormal gait/limp might be embarrassing <p>Rheumatoid Arthritis</p> <ul style="list-style-type: none"> • fusion of bones (Ankylosis) could which results in loss of movement • deformity of joints might be embarrassing. <p>Osteoporosis</p> <ul style="list-style-type: none"> • take care to avoid fractures due to loss in bone density <p>Accept other correct and relevant examples</p>	6	<p>This is a levels of response question – marks are awarded on the quality of the response given. The focus of the question is explain.</p> <p>Annotation: The number of ticks will not necessarily correspond to the marks awarded.</p> <p>Level 3 checklist:</p> <ul style="list-style-type: none"> • Detailed explanation • Clear knowledge & understanding of impact of malfunction. • Appropriate terminology • Well-developed line of reasoning • Logically structured • QWC - high <p>Level 2 checklist:</p> <ul style="list-style-type: none"> • Sound explanation • Some reference to aspects of impact of malfunction • Mostly relevant and accurate information • QWC - mid <p>Level 1 checklist:</p> <ul style="list-style-type: none"> • Limited / basic explanation • Basic information • Limited structure, may be list like or muddled • QWC – low 	<p>Level 3 [5-6 marks] Answers provide a detailed explanation of the impact of the identified malfunction. Answers are coherent, clear and logically structured, with a well-developed line of reasoning. Answers are factually accurate and use appropriate terminology. There will be few, if any, errors of grammar, punctuation and spelling.</p> <p>Level 2 [3-4 marks] The answer provides a sound explanation of the impact of the identified malfunction. Answers will be mostly relevant and factually accurate. There may be some errors of grammar, punctuation and spelling. Sub-max 3 if impact of arthritis on daily life explained well.</p> <p>Level 1 [1-2 marks] Answer provides a limited or basic explanation of impact of malfunction. May be a description / identification only. Answers may be list like, muddled, demonstrating little knowledge or understanding. Errors of grammar and spelling may be noticeable and intrusive.</p> <p>0 marks – response not worthy of credit.</p> <p>SEEN for a zero mark response</p>

Question	Answer/Indicative Content	Marks	Guidance	
			Content	Levels of response
2	(d)* <i>Describe the role of different blood components in the functions of blood.</i> White blood cell/ leucocyte: <ul style="list-style-type: none"> preventing infection/fight infection lymphocytes: <ul style="list-style-type: none"> role in immune system e.g. produce antibodies B-lymphocytes e.g. destroy other cells T-lymphocytes Neutrophils: <ul style="list-style-type: none"> Phagocytosis/destroy microbes e.g, bacteria that enter the body engulf microorganisms Monocytes: <ul style="list-style-type: none"> prevent infection in tissues destroys damaged cells Platelets: <ul style="list-style-type: none"> combine with clotting factors and fibrin to form a scab prevent the loss of blood Plasma: <ul style="list-style-type: none"> transport e.g. of glucose, carbon dioxide, urea, hormones temperature regulation maintains blood pressure <i>Don't credit anything related to erythrocytes or red blood cells</i>	6	<p>This is a levels of response question – marks are awarded on the quality of the response given. The focus of the question is discuss.</p> <p>Annotation: The number of ticks will not necessarily correspond to the marks awarded.</p> <p>Level 3 checklist:</p> <ul style="list-style-type: none"> Detailed description of the role of two or more blood components Clear knowledge & understanding of function of different blood components Appropriate terminology Well-developed line of reasoning Logically structured QWC - high <p>Level 2 checklist:</p> <ul style="list-style-type: none"> Sound description of the role of one or two blood components Information is mostly relevant and accurate Sub-max of 3 for only one role/ component done well QWC - mid <p>Level 1 checklist:</p> <ul style="list-style-type: none"> Limited description Basic information Limited structure, may be list like or muddled QWC – low 	<p>Level 3 [5-6 marks] Answers provide a detailed description of the role of blood components. Answers will be coherent, factually accurate and use appropriate terminology. Answers will be logically structured with a well-developed line of reasoning. There will be few, if any, errors of grammar, punctuation and spelling.</p> <p>Level 2 [3-4 marks] The answer provides a sound description of the role of blood components. Answers will be factually accurate and mostly relevant. There may be some errors of grammar, punctuation and spelling. Sub-max of 3 for only one blood component and its function done well</p> <p>Level 1 [1-2 marks] Answer provides a limited or basic description of the role of blood components. May be identification only. Answers may be list like, muddled, demonstrating little knowledge or understanding. Errors of grammar and spelling may be noticeable and intrusive.</p> <p>0 marks – response not worthy of credit. SEEN for a zero mark response</p>

Question			Answer	Marks	Guidance
3	(a)	(i)	<p>One mark for correct identification, two required.</p> <p>Two from:</p> <ul style="list-style-type: none"> • auditory nerve • semi-circular canals • cochlea 	<p>2 (2x1)</p>	<p>Annotation: The number of ticks must match the number of marks awarded.</p> <p>For incorrect answers use the cross or appropriate annotation from the following:</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> ^ SEEN </div>
3	(a)	(ii)	<p>One mark for correct identification, one required.</p> <ul style="list-style-type: none"> • semi-circular canals 	<p>1 (1x1)</p>	<p>No other answers are acceptable.</p> <p>If more than response is provided in each answer space: 0 marks</p>
3	(a)	(iii)	<p>One mark for correct identification, one required.</p> <ul style="list-style-type: none"> • semi-circular canals 	<p>1 (1x1)</p>	
3	(a)	(iv)	<p>One mark for correct identification, one required.</p> <ul style="list-style-type: none"> • ear drum/tympanic membrane 	<p>1 (1x1)</p>	

Question		Answer	Marks	Guidance										
3	(b)	<p>One mark for correct identification, one required.</p> <table border="1"> <thead> <tr> <th>Statements</th> <th>Tick (✓) one only</th> </tr> </thead> <tbody> <tr> <td>It converts sound waves into nerve impulses</td> <td></td> </tr> <tr> <td>It amplifies sound waves.</td> <td></td> </tr> <tr> <td>It enables vibrations to be passed through the inner ear.</td> <td></td> </tr> <tr> <td>It ensures equal pressure between the outside of the ear and the middle ear.</td> <td>✓</td> </tr> </tbody> </table>	Statements	Tick (✓) one only	It converts sound waves into nerve impulses		It amplifies sound waves.		It enables vibrations to be passed through the inner ear.		It ensures equal pressure between the outside of the ear and the middle ear.	✓	<p>1 (1x1)</p>	<p>Annotation: The number of ticks must match the number of marks awarded.</p> <p>For incorrect answers use the cross.</p> <p>No other answers are acceptable.</p> <p>If more than one box is ticked: 0 marks</p>
Statements	Tick (✓) one only													
It converts sound waves into nerve impulses														
It amplifies sound waves.														
It enables vibrations to be passed through the inner ear.														
It ensures equal pressure between the outside of the ear and the middle ear.	✓													

Question	Answer/Indicative Content	Marks	Guidance	
			Content	Levels of response
3	(c)* <i>Explain the effects of deafness and possible treatments available.</i> Examples with explanations to include: Effects e.g. blockage due to ear wax / damage to hair cells can cause <ul style="list-style-type: none"> • sound waves not reaching the cochlea • sound waves not converted to electrical impulses • difficulty with communication • e.g. hearing what other people say • e.g. difficulty with telephone conversations • e.g. can't hear TV • social isolation • frustration • low self-esteem • may have to learn sign language/lip reading Treatments <ul style="list-style-type: none"> • ear drops to dissolve blockages. • syringing to remove ear wax blockages. • hearing aids to make sounds louder. • implants e.g. in cochlea to replace function of inner ear / cochlea • antibiotics to treat ear infections. • grommets to drain fluid from middle ear. Accept other correct effects and treatments	6	<p>This is a levels of response question – marks are awarded on the quality of the response given. The focus of the question is explain.</p> <p>Annotation: The number of ticks will not necessarily correspond to the marks awarded.</p> <p>Level 3 checklist:</p> <ul style="list-style-type: none"> • Detailed explanation • Clear knowledge & understanding of effects of deafness • Explanation explicitly linked to effects of deafness and treatments • Appropriate terminology • Well-developed line of reasoning • Logically structured • QWC - high <p>Level 2 checklist:</p> <ul style="list-style-type: none"> • Sound explanation • Some reference to effects of deafness and treatments • Mostly relevant and accurate information • Sub-max of 3 if one of either effects OR possible treatments done well • QWC - mid <p>Level 1 checklist:</p> <ul style="list-style-type: none"> • Limited / basic description • Basic information • Limited structure, may be list like or muddled • QWC – low 	<p>Level 3 [5-6 marks] Answers provide a detailed explanation of deafness and treatments. Answers will be coherent, factually accurate and use appropriate terminology. Answers will be logically structured and have a well-developed line of reasoning. There will be few, if any, errors of grammar, punctuation and spelling.</p> <p>Level 2 [3-4 marks] The answer provides explanation of deafness and treatments. Answers will be factually accurate and mostly relevant. There may be some errors of grammar, punctuation and spelling. Sub-max of 3 if only one of either effects OR possible treatments done well.</p> <p>Level 1 [1-2 marks] Answer provides a limited or basic explanation of effects of deafness and treatments. May be a descriptive or identification only. Answers may be list like, muddled, demonstrating little knowledge or understanding. Errors of grammar and spelling may be noticeable and intrusive.</p> <p>0 marks – response not worthy of credit. SEEN for a zero mark response</p>

Question		Answer	Marks	Guidance										
3	(d)	<p>One mark for correct identification, one required.</p> <table border="1"> <thead> <tr> <th>Parts of the brain</th> <th>Tick (✓) one only</th> </tr> </thead> <tbody> <tr> <td>Hypothalamus</td> <td></td> </tr> <tr> <td>Cerebral cortex</td> <td>✓</td> </tr> <tr> <td>Medulla (oblongata)</td> <td></td> </tr> <tr> <td>Corpus callosum</td> <td></td> </tr> </tbody> </table>	Parts of the brain	Tick (✓) one only	Hypothalamus		Cerebral cortex	✓	Medulla (oblongata)		Corpus callosum		<p>1 (1x1)</p>	<p>Annotation: The number of ticks must match the number of marks awarded.</p> <p>For incorrect answers use the cross.</p> <p>No other answers are acceptable.</p> <p>If more than one box is ticked: 0 marks</p>
Parts of the brain	Tick (✓) one only													
Hypothalamus														
Cerebral cortex	✓													
Medulla (oblongata)														
Corpus callosum														

Question	Answer/Indicative Content	Marks	Guidance	
			Content	Levels of response
3 (e)*	<p>Examples of possible biological causes: Haemorrhagic stroke</p> <ul style="list-style-type: none"> • weak blood vessel • aneurysm • blood vessel bursts in brain / skull • bleeding in brain • damages cells • increased pressure damages brain cells <p>Ischaemic stroke/TIA</p> <ul style="list-style-type: none"> • obstruction in blood vessel • atheroma • plaques/fatty deposits • blood clot • restricts blood flow to brain • oxygen supply reduced. • brain cells damaged/die <p>Examples of possible lifestyle factors: High blood pressure / High salt diet</p> <ul style="list-style-type: none"> • increases damage risk to blood vessels <p>High blood cholesterol levels / High fat diet</p> <ul style="list-style-type: none"> • increased risk of atheroma <p>Smoking/Diabetes</p> <ul style="list-style-type: none"> • damages lining of blood vessels • increased risk of atheroma <p>Lack of exercise</p> <ul style="list-style-type: none"> • poor circulation • increased risk of obesity <p>Examples are not exhaustive, credit other appropriate causes / lifestyle factors.</p>	8	<p>This is a levels of response question – marks are awarded on the quality of the response given. The focus of the question is explain.</p> <p>Annotation: The number of ticks will not necessarily correspond to the marks awarded.</p> <p>Level 3 checklist:</p> <ul style="list-style-type: none"> • Must have both physical and at least 2 lifestyle causes • Fully detailed explanation • Well-developed, clear and logically structured • Factually accurate & relevant • Correct use of terminology • QWC – high <p>Level 2 checklist:</p> <ul style="list-style-type: none"> • Sound explanation • Some reference to biological and at least 2 lifestyle causes • May be unbalanced with just biological or just lifestyle • Mostly relevant and accurate information • Sub-max of 4 if one of either physical or lifestyle causes • QWC - mid <p>Level 1 checklist:</p> <ul style="list-style-type: none"> • Limited / basic explanation • Basic information • Aspect of one cause or lifestyle factor • Limited structure, may be list like or muddled • QWC – low 	<p>Level 3 [7-8 marks] Answers provide a detailed explanation of biological causes and lifestyle factors using accurate terminology. Answers follow a logical structure. Sentences and paragraphs are relevant with accurate use of appropriate terminology. There will be few, if any, errors of grammar, punctuation and spelling</p> <p>Level 2 [4-6 marks] The answer provides a sound explanation of causes and lifestyle factors. Answers will be factually accurate and mostly relevant. There may be some errors of grammar, punctuation and spelling.</p> <p>Sub-max of 4 if one of either physical OR lifestyle causes done well.</p> <p>Level 1 [1-3 marks] Answer provides a limited or basic explanation. May be a descriptive or identification only. Answers may be list like, muddled, demonstrating little knowledge or understanding. Errors of grammar and spelling may be noticeable and intrusive.</p> <p>0 marks – response not worthy of credit. SEEN for a zero mark response</p>

Question		Answer	Marks	Guidance										
4	(a)	<p>One mark for each correct answer, four required.</p> <table border="1"> <thead> <tr> <th>Statement</th> <th>True or False</th> </tr> </thead> <tbody> <tr> <td>Aerobic respiration produces more ATP than anaerobic respiration.</td> <td>True or T</td> </tr> <tr> <td>Aerobic respiration takes place in mitochondria.</td> <td>True or T</td> </tr> <tr> <td>Anaerobic respiration needs glucose and oxygen.</td> <td>False or F</td> </tr> <tr> <td>Lactic acid is produced during aerobic respiration.</td> <td>False or F</td> </tr> </tbody> </table>	Statement	True or False	Aerobic respiration produces more ATP than anaerobic respiration.	True or T	Aerobic respiration takes place in mitochondria.	True or T	Anaerobic respiration needs glucose and oxygen.	False or F	Lactic acid is produced during aerobic respiration.	False or F	<p>4 (4x1)</p>	<p>Annotation: The number of ticks must match the number of marks awarded.</p> <p>For incorrect answers use the cross.</p> <p>Accept tick for true and cross for false.</p> <p>No other answers are acceptable.</p> <p>If more than one response is provided per statement: 0 marks</p>
Statement	True or False													
Aerobic respiration produces more ATP than anaerobic respiration.	True or T													
Aerobic respiration takes place in mitochondria.	True or T													
Anaerobic respiration needs glucose and oxygen.	False or F													
Lactic acid is produced during aerobic respiration.	False or F													
4	(b)	<p>One mark for an identification, one required.</p> <table border="1"> <thead> <tr> <th>Processes</th> <th>Tick (✓) one only</th> </tr> </thead> <tbody> <tr> <td>Assimilation</td> <td></td> </tr> <tr> <td>Absorption</td> <td></td> </tr> <tr> <td>Diffusion</td> <td>✓</td> </tr> <tr> <td>Inspiration</td> <td></td> </tr> </tbody> </table>	Processes	Tick (✓) one only	Assimilation		Absorption		Diffusion	✓	Inspiration		<p>1 (1x1)</p>	<p>Annotation: The number of ticks must match the number of marks awarded.</p> <p>For incorrect answers use the cross.</p> <p>No other answers are acceptable.</p> <p>If more than one box is ticked: 0 marks</p>
Processes	Tick (✓) one only													
Assimilation														
Absorption														
Diffusion	✓													
Inspiration														

Question			Answer	Marks	Guidance
4	(c)	(i)	<p>One mark for an identification, two required</p> <p>Cause of asthma:</p> <ul style="list-style-type: none"> • Genetic predisposition (don't accept born with it) • Narrowing of airways • Muscles of bronchioles/airways constrict • Walls of bronchioles become inflamed • Production of mucus <p>Allergens/triggers e.g</p> <ul style="list-style-type: none"> • Tobacco smoke • Air pollution • Dust mites • Pollen • Pet hair <p>Cause of emphysema:</p> <ul style="list-style-type: none"> • Destruction of alveolar walls • Air trapping • Reduced sites for gaseous exchange • Smoking • Dust • Occupational hazard e.g. exposure to chemicals <p>These lists are not exhaustive, accept other appropriate, correct causes.</p>	<p>2 (2x1)</p>	<p>Annotation: The number of ticks must match the number of marks awarded.</p> <p>For incorrect answers use the cross or appropriate annotation from the following:</p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> ^ TV REP SEEN </div> <p>If more responses provided as each answer, mark the first response only.</p>

Question			Marks	Guidance	
				Content	Levels of response
4	(c)	(ii)*	8	<p><i>Evaluate lifestyle changes and care needed to help an individual manage emphysema.</i></p> <p>This is a levels of response question – marks are awarded on the quality of the response given. The focus of the question is evaluate. Annotation: The number of ticks will not necessarily correspond to the marks awarded.</p> <p>Level 3 checklist:</p> <ul style="list-style-type: none"> • Fully detailed evaluation • At least two different lifestyle changes and two different care needs • Both positives and negatives • Well-developed, clear and logically structured • Factually accurate & relevant • Correct use of terminology • QWC – high <p>Level 2 checklist:</p> <ul style="list-style-type: none"> • Sound evaluation • One or more different lifestyle changes and one or more care need • Both positives and negatives for at least one of these • Mostly relevant and accurate information • Sub-max of 4 for one lifestyle change or one care need well done • QWC - mid <p>Level 1 checklist:</p> <ul style="list-style-type: none"> • Limited / basic evaluation • Basic information • Positive or negative of either lifestyle change or care need • Limited structure, may be list like or muddled • QWC – low 	<p>Level 3 [7-8 marks] Answers provide a detailed evaluation of two or more different lifestyle changes and two or more different care needs. Answers follow a logical sequence. Both positives and negatives will be given. Answers will be factually accurate and relevant with accurate use of appropriate terminology. There will be few, if any, errors of grammar, punctuation and spelling.</p> <p>Level 2 [4-6 marks] The answer provides a sound evaluation of two possible lifestyle changes or care needs. Positive and negative for at least one of these will be given. Answers will be factually accurate. There may be some errors of grammar, punctuation and spelling. Sub-max of 4 for one lifestyle change or one care need well done. Or a response that only covers positives or negatives.</p> <p>Level 1 [1-3 marks] Answer provides a limited or basic evaluation with either positive or negative for one lifestyle change or care need. May be a description / identification only. Answers may be list like, muddled, demonstrating little knowledge or understanding. Errors of grammar and spelling may be noticeable and intrusive.</p> <p>0 marks – response not worthy of credit. SEEN for a zero mark response</p>

Answer/Indicative content		
LIFESTYLE CHANGES	Positive	Negatives
Give up smoking	<ul style="list-style-type: none"> • slow progress of disease • reduces lung irritation • improves breathing • less likely to become short of breath 	<ul style="list-style-type: none"> • difficult to do as very addictive • possible mood changes • possible depression • may curtail social activities
Avoid air pollution	<ul style="list-style-type: none"> • slow progress of disease • reduces lung irritation • improves breathing • less likely to become short of breath 	<ul style="list-style-type: none"> • difficult to do depending on where you live e.g. in a city • may have to wear mask • may result in being unable to go outside • may affect emotional well-being
Change in work	<ul style="list-style-type: none"> • reduce exposure to harmful chemicals • slow progress of disease • get better job 	<ul style="list-style-type: none"> • loss of income • debt • loss of self-esteem
CARE NEEDS	Positive	Negatives
Oxygen cylinders installed	<ul style="list-style-type: none"> • assist with breathing 	<ul style="list-style-type: none"> • need to be connected to machine • disruption to normal routines
Mobility aids	<ul style="list-style-type: none"> • assist with going upstairs can still use bedrooms • can get out of the house to shop 	<ul style="list-style-type: none"> • house modification may be needed • affect on other family members
Home help	<ul style="list-style-type: none"> • can remain in own home 	<ul style="list-style-type: none"> • lose independence • affect on other family members • cost

Question		Answer	Marks	Guidance										
5	(a)	<p>One mark for an identification, four required.</p> <table border="1"> <thead> <tr> <th>Statement</th> <th>Structure</th> </tr> </thead> <tbody> <tr> <td>The outer layer of the kidney.</td> <td>cortex</td> </tr> <tr> <td>A tube that carries urine from the kidney to the bladder.</td> <td>ureter</td> </tr> <tr> <td>A chamber that collects urine.</td> <td>calyx</td> </tr> <tr> <td>A tube that passes urine out of the body.</td> <td>urethra</td> </tr> </tbody> </table>	Statement	Structure	The outer layer of the kidney.	cortex	A tube that carries urine from the kidney to the bladder.	ureter	A chamber that collects urine.	calyx	A tube that passes urine out of the body.	urethra	<p>4 (4x1)</p>	<p>Annotation: The number of ticks must match the number of marks awarded.</p> <p>For incorrect answers use the cross or appropriate annotation from the following:</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> ^ TV REP SEEN </div> <p>No other answers are acceptable.</p> <p>If more than response is provided in one box: 0 marks</p>
Statement	Structure													
The outer layer of the kidney.	cortex													
A tube that carries urine from the kidney to the bladder.	ureter													
A chamber that collects urine.	calyx													
A tube that passes urine out of the body.	urethra													

Question	Answer	Marks	Guidance
5 (b)	<p>For each function, one mark for identifying and one mark for describing the function.</p> <p>Function:</p> <ul style="list-style-type: none"> • Osmoregulation (accept regulation of water levels) <p>Description:</p> <ul style="list-style-type: none"> • regulates water balance in body • maintains water potential/concentration in blood • occurs in collecting duct <p>Function:</p> <ul style="list-style-type: none"> • Excretion <p>Description:</p> <ul style="list-style-type: none"> • waste products are removed from the blood • for example urea <p>Function:</p> <ul style="list-style-type: none"> • Ultrafiltration (don't accept filtering alone) <p>Description:</p> <ul style="list-style-type: none"> • occurs in Glomerulus/ Bowmans capsule • hydrostatic pressure forces • plasma and dissolved products out of the blood <p>Function:</p> <ul style="list-style-type: none"> • Selective reabsorption (don't accept reabsorption alone) <p>Description:</p> <ul style="list-style-type: none"> • puts useful molecules back into blood • e.g. glucose / amino acids reabsorbed • occurs in (proximal) convoluted tubule. 	4 (1x4)	<p>Annotation: The number of ticks must match the number of marks awarded.</p> <p>For incorrect answers use the cross or appropriate annotation from the following:</p> <div data-bbox="1592 405 1962 488" style="border: 1px solid black; padding: 5px; text-align: center;"> ^ TV REP SEEN </div>

Question		Answer	Marks	Guidance
5	(c)	<p>One mark for an identification, one required.</p> <ul style="list-style-type: none">Renal Artery	<p>1 (1x1)</p>	<p>Annotation: The number of ticks must match the number of marks awarded.</p> <p>For incorrect answers use the cross.</p> <p>No other answers are acceptable.</p> <p>If more responses provided as each answer, mark the first response only.</p>

Question			Answer/Indicative Content	Marks	Guidance	
					Content	Levels of response
5	(d)	(i)*	<p>Compare the structure of the artery in the diagram with the structure of a vein and a capillary.</p> <ul style="list-style-type: none"> all have endothelium / inner lining <p>Artery:</p> <ul style="list-style-type: none"> thickest wall more muscle no valves more elastic fibres small lumen / small internal diameter <p>Vein:</p> <ul style="list-style-type: none"> thin wall less muscle than artery valves less elastic fibres than artery large lumen / large internal diameter <p>Capillary:</p> <ul style="list-style-type: none"> thinnest wall single layer of cells no muscle no elastic fibres no valves narrow lumen <p>well-developed line of reasoning logically structured</p> <p>Candidates should be comparing the structural features e.g. "Arteries have thicker walls than veins and capillaries"</p> <p>For L3 candidates should be linking structure to function.</p>	6	<p>This is a levels of response question – marks are awarded on the quality of the response given. The focus of the question is compare.</p> <p>Annotation: The number of ticks will not necessarily correspond to the marks awarded.</p> <p>Level 3 checklist:</p> <ul style="list-style-type: none"> Detailed comparison Clear knowledge & understanding blood vessel structure Explanation explicitly linked to blood vessel structure and function. Must cover arteries, veins and capillaries Appropriate terminology Well-developed line of reasoning Logically structured QWC - high <p>Level 2 checklist:</p> <ul style="list-style-type: none"> Sound comparison Some reference to aspects blood vessel structure Mostly relevant and accurate information Sub-max of 3 if only two of arteries, veins and capillaries QWC - mid <p>Level 1 checklist:</p> <ul style="list-style-type: none"> Limited / basic comparison Basic information Limited structure, may be list like or muddled QWC – low <p>Be aware of candidates simply repeating information from the diagram.</p>	<p>Level 3 [5-6 marks] Answers provide a detailed comparison of blood vessel structure, which includes arteries, veins and capillaries. Answers will be coherent, factually accurate and use appropriate terminology. Answers will be logically structured and have a well-developed line of reasoning. There will be few, if any, errors of grammar, punctuation and spelling.</p> <p>Level 2 [3-4 marks] The answer provides a sound comparison of effects of blood vessel structure. Answers will be factually accurate and mostly-relevant. There may be some errors of grammar, punctuation and spelling. Sub-max of 3 if only two of arteries, veins and capillaries compared. Or no comparison between structures.</p> <p>Level 1 [1-2 marks] Answer provides a limited or basic comparison of blood vessel structure. May be a identification only. Answers may be list like, muddled, demonstrating little knowledge or understanding. Errors of grammar and spelling may be noticeable and intrusive.</p> <p>0 marks – response not worthy of credit.</p> <p>SEEN for a zero mark response</p>

Question			Answer	Marks	Guidance
5	(d)	(ii)	<p>One mark for an effect, two required.</p> <ul style="list-style-type: none"> • angina • tight chest • breathlessness/difficulties breathing/get tired easily • palpitations • unexplained sweating • dizziness • chest pain • pain in arm or jaw • nausea • heart attack • high blood pressure • high (resting) heart rate <p>Accept any other correct responses.</p>	<p>2 (2x1)</p>	<p>Annotation: The number of ticks must match the number of marks awarded.</p> <p>For incorrect answers use the cross or appropriate annotation from the following:</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> ^ TV REP SEEN </div> <p>If more responses provided as each answer, mark the first response only.</p>

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