

T Level Technical Qualification in Health

Core knowledge and understanding

Paper B

Mark Scheme

This Mark Scheme has been written by the assessment writer and refined, alongside the relevant questions, by a panel of subject experts through the external assessment writing process and at standardisation meetings.

The purpose of this Mark Scheme is to give you:

- examples and criteria of the types of response expected from a student
- information on how individual marks are to be awarded
- the allocated assessment objectives (AOs) and total mark for each question.

Marking guidelines

General guidelines

You must apply the following marking guidelines to all marking undertaken throughout the marking period. This is to ensure fairness to all students, who must receive the same treatment. You must mark the first student in exactly the same way as you mark the last.

- The Mark Scheme must be referred to throughout the marking period and applied consistently; do not change your approach to marking once you have been standardised.
- Reward students positively giving credit for what they have shown, rather than what they might have omitted.
- Utilise the whole mark range and always award full marks when the response merits them.
- Be prepared to award zero marks if the student's response has no creditworthy material.
- Do not credit irrelevant material that does not answer the question, no matter how impressive the response might be.
- If you are in any doubt about the application of the Mark Scheme, you must consult with your team leader or the chief examiner.

Guidelines for using extended response marking grids

Extended response marking grids have been designed to assess students' work holistically. They consist of bands-based descriptors and indicative content.

Bands-based descriptors: each band is made up of several descriptors for across the assessment objective (AO) range, AO1 to AO3, which, when combined, provide the quality of response that a student needs to demonstrate. Each band-based descriptor is worth varying marks.

The grids are broken down into bands, with each band having an associated descriptor indicating the performance at that band. You should determine the band before determining the mark.

Indicative content reflects content-related points that a student may make but is not an exhaustive list. Nor is it a model answer. Students may make all, some or none of the points included in the indicative content as its purpose is as a guide for the relevance and expectation of the responses. Students must be credited for any other appropriate response.

Application of extended response marking grids

When determining a band, you should use a bottom-up approach. If the response meets all the descriptors in the lowest band, you should move to the next one, and so on, until the response matches the band descriptor. Remember to look at the overall quality of the response and reward students positively, rather than focussing on small omissions. If the response covers aspects at different bands, you should use a best-fit approach at this stage and use the available marks within the band to credit the response appropriately.

When determining a mark, your decision should be based on the quality of the response in relation to the descriptors. You must also consider the relative weightings of the assessment objectives (AOs), so as not to over / under credit a response. Standardisation materials, marked by the chief examiner, will help you with determining a mark. You will be able to use exemplar student responses to compare to live responses, to decide if it is the same, better or worse.

You are reminded that the indicative content provided under the marking grid is there as a guide and therefore you must credit other suitable responses a student may produce. It is not a requirement either that students must cover all the indicative content to be awarded full marks.

Assessment objectives (AOs)

This assessment requires students to:

- AO1: Demonstrate knowledge and understanding of contexts, concepts, theories and principles in healthcare
- AO2: Apply knowledge and understanding of contexts, concepts, theories and principles in healthcare to different situations and contexts
- AO3: Analyse and evaluate information and issues related to contexts, concepts, theories and principles in healthcare to make informed judgements, draw conclusions and address individual needs

The weightings of each assessment objective (AO) can be found in the Qualification Specification.

Section A: body systems 1

This section is worth **35** marks, plus **6** marks for the quality of written communication (QWC) and use of specialist terminology.

1 Name one physical barrier which prevents pathogens entering the body.

[1 mark]

AO1 = 1 mark

Award **one** mark for a correct answer, up to a maximum of **one** mark:

- skin
- mucous membrane.

Accept any other suitable response.

2 Name two types of organism made up of eukaryotic cells.

[2 marks]

AO1 = 2 marks

Award **one** mark for each type of organism named, up to a maximum of **two** marks:

- plants
- yeast
- algae
- animals.

Accept any other suitable response.

3 Nadia is obese and is travelling from the UK to Italy for weight loss surgery. She is having a gastric band fitted in a private hospital in Italy.

She knows her current height is 5 feet 1 inch, and her weight is 12 stone 2 pounds. Before she travels, her GP has insisted on measuring and recording her notes in the international system of units (SI), using metres and kilograms, for the Italian medical team.

Describe one reason for using the international system of units (SI) in Nadia's care.

[2 marks]

AO2 = 2 marks

Award **one** mark for each description, up to a maximum of **two** marks:

- Using SI units enables Nadia's care team in both countries to understand the data (1); this allows them to engage effectively with the information they will use for her care (1).
- Using SI units means that Nadia and her care teams in both countries do not need to convert any measurements (1), reducing the risk of errors during her surgery (1).

Accept any other suitable response.

4 A standard daily dose of paracetamol is 4000 mg.

Convert this dose to grams.

You should show your working.

[2 marks]

AO2 = 2 marks

Award **one** mark for the correct calculation:

4000/1000 (1)

or

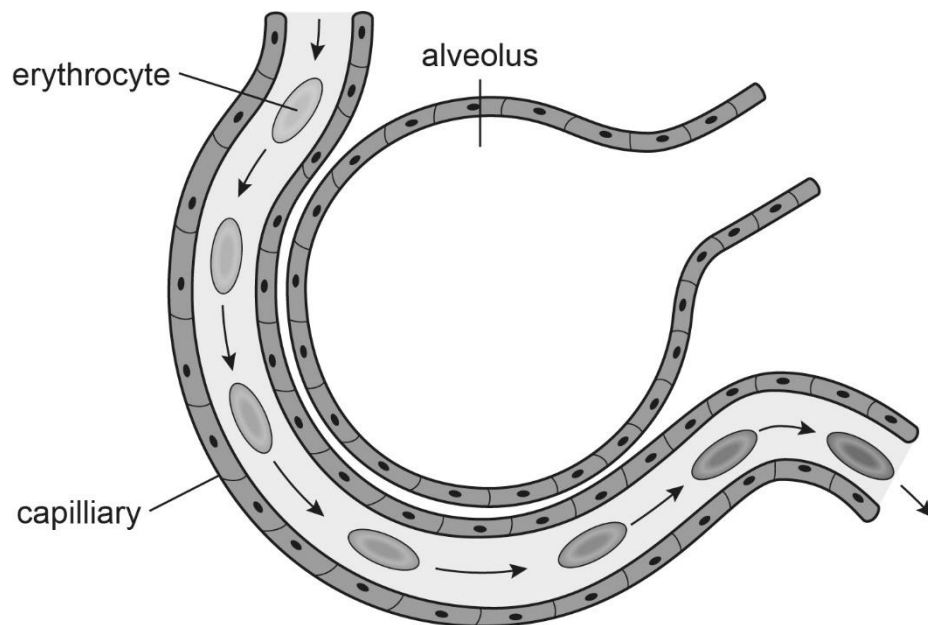
4000 x 0.001(1).

Award **one** mark for the correct answer:

4 (g) (1).

Note: award **two** marks for an answer of 4 g without working.
Accept 4 with or without unit.

5 (a) Figure 1: erythrocyte travelling through a capillary around an alveolus



Describe what happens to the gas composition of the erythrocytes as they travel through this capillary.

[2 marks]

AO2 = 2 marks

Award **one** mark for each description point, up to a maximum of **two** marks:

- As the erythrocytes (red blood cells) pass into the capillaries of the alveoli, carbon dioxide moves out of the cell / is deposited (1) and oxygen moves into the cell / is taken up by the cells (1)

Accept any other suitable response.

(b) As part of an elite cycling race, riders must have a blood test to test for performance enhancing drugs. One of these drugs has the effect of increasing the number of erythrocytes in the body.

Explain one way this drug might affect a rider's performance in the race.

[2 marks]

AO2 = 2 marks

Award **one** mark for each description, up to a maximum of **two** marks.

- An increase in erythrocyte cells means an increased oxygen-carrying capacity (1). This would mean that elite cyclists' muscles have an increased supply of oxygen, potentially improving their performance and giving them an advantage in the race (1).
- An increase in erythrocyte cells means an increased carbon dioxide carrying capacity (1). This would mean that elite cyclists have an increased capacity to remove waste products, potentially improving their performance and giving them an advantage in the race (1).

Accept any other suitable response.

6 Gerald has rheumatoid arthritis (RA), which is an autoimmune disease that causes pain, swelling and stiffness in joints, especially the hands, feet and wrists.

Although there is no cure for RA, there is a range of treatments available that relieve symptoms.

Gerald's specialist nurse has recommended he takes methotrexate (an anti-rheumatic drug) and participates in physiotherapy sessions.

Discuss the nurse's two recommendations for Gerald.

[6 marks]

AO3 = 6 marks

Award **one** mark for each discussion point, up to a maximum of **six** marks:

- Methotrexate works by reducing the effects of the immune system attack on joints (1), so reducing the swelling, inflammation and damage to them (1). This will mean Gerald's joints will be protected from further deterioration and he will have a reduction in pain, so the nurse's recommendation is a good one (1).
- The aim of physiotherapy is to keep Gerald moving (1) by using exercise to stimulate muscles, bones and joints (1). This will lead to more strength, tone and overall fitness and reduced pain for Gerald (1).
- Both treatments may have side effects (1), and the nurse would need to monitor Gerald's side effects on an ongoing basis (1). This would mean his medication and physiotherapy are tailored and personalised to him (1).

Accept any other suitable response.

7 Jeff is 23 years old and has recently been diagnosed with germ cell testicular cancer. The cancer has been identified in one testicle and it is at an early stage. He is due to have the cancerous testicle surgically removed.

The cancer specialist has suggested the following post-operative treatment plan for Jeff:

- **nursing support for post-operative wound care**

- **information about ongoing health monitoring for five years after the surgery.**

Evaluate the cancer specialist’s advice.

Your response must include reasoned judgements and conclusions.

[9 marks, plus 3 marks for QWC]

AO1 = 3 marks

AO2 = 3 marks

AO3 = 3 marks

QWC = 3 marks

Band	Mark	Descriptor
3	7 to 9	<p>AO3 – Evaluation of the cancer specialist’s advice demonstrates an understanding of germ cell testicular cancer, and the advice offered which is detailed and effective, with clearly reasoned consequences. Clear links are made.</p> <p>AO2 – Application of knowledge is appropriate and accurate, demonstrating a clear understanding of germ cell testicular cancer.</p> <p>AO1 – A wide range of relevant knowledge and understanding of testicular cancer is evident, accurate and detailed.</p>
2	4 to 6	<p>AO3 – Evaluation of the cancer specialist’s advice demonstrates an understanding of germ cell testicular cancer, and the advice offered is in some parts effective and of some relevance, with some understanding and reasoning taking the form of generic statements with some development.</p> <p>AO2 – Applies some knowledge that is mainly appropriate and accurate, demonstrating some understanding of germ cell testicular cancer.</p> <p>AO1 – A limited range of relevant knowledge and understanding of germ cell testicular cancer is evident, accurate and detailed. OR: a wide range of relevant knowledge and understanding of germ cell testicular cancer that lacks accuracy and detail</p>
1	1 to 3	<p>AO3 – Evaluation of the cancer specialist’s advice demonstrates an understanding of germ cell testicular cancer that is minimal, and the advice offered is minimal and very limited in effectiveness and relevance.</p> <p>AO2 – Applies limited knowledge and understanding of germ cell testicular cancer is evident but lacks accuracy.</p> <p>AO1 – A limited range of relevant knowledge and understanding of germ cell testicular cancer is evident, but is not accurate and detailed</p>
	0	No creditworthy material

Indicative content

Examiners are reminded that the indicative content reflects content-related points that a student may make but is not an exhaustive list, nor is it a model answer. Students may make all, some or none of the points included in the indicative content, as its purpose is as a guide for the relevance and expectation of the responses. Students must be credited for any other appropriate response.

AO1 and **AO2** will be implicit through the level of evaluation and reasoned judgements and / or conclusions that the student provides.

AO1: Demonstration of knowledge and understanding of germ cell testicular cancer; for example:

- Germ cell testicular cancer (TC) is most prevalent in males between the ages of 15 and 49.
- Early-stage TC indicates that the cancer has not spread and is isolated to the testicle.
- Early-stage TC has a very good prognosis, and surgery is the first line of treatment.
- Diagnosis of germ cell testicular cancer in one testicle makes it more likely that a diagnosis of germ cell testicular cancer in the other testicle will be made in the future.
- TC is diagnosed via an ultrasound scan and a blood test which checks for tumour markers.
- The causes of TC are often unknown; however, the risk factors include undescended testicles, previous TC, family history of TC, HIV / AIDS.
- Other treatments for TC include fertility support and psychological care.

AO2: Application of knowledge and understanding of the impact of germ cell testicular cancer surgery on Jeff:

- Jeff may experience physical and psychological effects of the TC and surgery, such as the physical effects of losing a testicle and the psychological impact on his body image.
- The physical impact on Jeff may be pain post-operatively due to surgical removal of the testicle. He will need access to some analgesia in the post-operative period.
- The surgery may mean that Jeff is at risk of infection in the days post-operatively. He will need to ensure his surgical wounds are covered with a dressing and he maintains his hygiene.
- Jeff may experience a psychological impact around his identity as a man. Having had a testicle removed may affect his body image and sense of masculinity.
- Jeff will need access to psychological support. For example, this could be in the form of networks or groups for counselling from other men who have been through the treatment process.
- Jeff may experience issues with fertility in the future, so prior to any surgery he will be offered fertility support and the chance to bank his sperm for use in the future.
- Jeff will need ongoing monitoring (surveillance) to ensure that he remains cancer free, and if the cancer does return, it is detected early, and treatment can commence.

AO3: Evaluation of the treatment recommended for Jeff:

- It is good practice / important to have post-operative wound care for risk of infection / complications, however, the removal of the testicle may also have a psychological impact

on Jeff, and it may be beneficial for multidisciplinary team support to not only deal with the physical aspects of wound care but also the psychological aspects too.

- Support from a nurse will ensure that Jeff’s pain is managed post-operatively and his wound is kept clean and free from infection. The challenge with this is that Jeff may be embarrassed by having a nurse check his wound. Jeff will need to be educated on the importance of letting the nurses care for him to ensure a quick recovery.
- Health monitoring and surveillance are vital for Jeff to ensure that any return of the cancer is detected early. Jeff may be reluctant to engage in health surveillance due to fear of the cancer returning. However, Jeff will need to understand the importance of engaging with these check-ups for a 5-year period. If the cancer does return, then treatment can be initiated quickly.
- Jeff should be offered psychological support from a group or network to offer emotional support to Jeff as he returns to normal life following his treatment. Jeff will need to be educated on the importance of talking therapies and sharing how he feels, and this should have been included in the plan.
- The recommended treatment plan is missing the option for Jeff to access fertility support to ensure he can have children in the future. This is important for Jeff to discuss with healthcare professionals to ensure that he can make informed choice about his options for his future.
- If Jeff feels having children is not part of his plans, he should be encouraged where possible to accept fertility advice and support and this should have been included in the plan. He should also be offered psychological support to help him make this kind of decision, for example, through a support group or counselling service and this has not been included in his treatment plan.

Accept any other suitable response.

QWC mark scheme

Mark	Descriptor
3	The answer is clearly expressed and well-structured. The rules of grammar are used with effective control of meaning overall. A wide range of appropriate technical terms is used effectively.
2	The answer is generally clearly expressed and sufficiently structured. The rules of grammar are used with general control of meaning overall. A good range of appropriate technical terms is used effectively.
1	The answer lacks some clarity and is generally poorly structured. The rules of grammar are used with some control of meaning and any errors do not significantly hinder the overall meaning. A limited range of appropriate technical terms is used effectively.
0	There is no answer written or none of the material presented is creditworthy. Or The answer does not reach the threshold performance level. The answer is fragmented and unstructured, with inappropriate use of technical terms. The errors in grammar severely hinder the overall meaning.

8	Angela is a school nurse. In one school where she works, she has noticed that a large percentage of the children are overweight or obese.
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Obesity is caused by a poor diet, high in fats and sugars, exceeding the calorific demand of the body.

She would like to set up a targeted health promotion campaign to educate them about healthy diet and exercise.

She is undecided about her health promotion approach and is considering the following options:

Option 1 – a series of focussed one-to-one teaching sessions with the children who are identified as overweight or obese. The children will be taken out of class to engage with this.

Option 2 – more generalised teaching sessions with all the children in all classes. These sessions will replace other taught content and offer general advice and guidance on healthy eating and exercise.

Evaluate the two options available to Angela in improving the health of the children.

Your response must include reasoned judgements and conclusions.

[9 marks, plus 3 marks for QWC]

AO1 = 3 marks

AO2 = 3 marks

AO3 = 3 marks

QWC = 3 marks

Band	Mark	Descriptor
3	7 to 9	<p>AO3 – Evaluation demonstrates an understanding of the potential impacts of the different options for health promotion that is comprehensive, effective and relevant, showing detailed understanding and logical and coherent chains of reasoning throughout. Makes informed conclusions that are fully supported with rational and balanced reasoned judgements.</p> <p>AO2 – Applies fully relevant knowledge of health promotion and shows a detailed functional understanding. This is effectively linked to the scenario in the question.</p> <p>AO1 – A wide range of relevant knowledge and understanding of the role of health promotion, which is accurate and detailed. A wide range of appropriate technical terms are used.</p>
2	4 to 6	<p>AO3 – Evaluation of the potential impacts of the health promotion options is in most parts effective and mostly relevant, showing mostly logical and coherent chains of reasoning. Given conclusions are supported by reasoned judgements that consider most of the relevant arguments.</p>

		<p>AO2 – Applies mostly relevant knowledge of health promotion, showing some functional understanding. This is linked to the scenario in the question.</p> <p>AO1 – Knowledge and understanding of the role of health promotion is in most parts clear and mostly accurate, although on occasion may lose focus.</p>
1	1 to 3	<p>AO3 – Evaluation of the potential impacts of the health promotion options is minimal and very limited in effectiveness and relevance. Gives brief conclusions that are supported by judgements that consider only basic arguments and show little relevance to the question’s aims.</p> <p>AO2 – Applies limited knowledge of health promotion, showing a very limited functional understanding.</p> <p>AO1 – Knowledge and understanding of the role of health promotion shows very minimal accuracy, focus and relevance.</p>
	0	No creditworthy material.

Indicative content

Examiners are reminded that the indicative content reflects content-related points that a student may make but is not an exhaustive list, nor is it a model answer. Students may make all, some or none of the points included in the indicative content, as its purpose is as a guide for the relevance and expectation of the responses. Students must be credited for any other appropriate response.

AO1 and **AO2** will be implicit through the level of discussion and / or conclusions that the student provides.

AO1: Demonstration of understanding of the role of health promotion:

- Physical and mental health issues are costly to the individual in terms of quality of life, costly to the NHS in terms of demand, and costly to the economy in terms of an unfit workforce.
- Education is key in raising awareness and empowering individuals to adapt their behaviour.
- Education programmes for health promotion include targeted awareness raising and campaigns.
- A direct communication campaign raises awareness of required behaviours in those at risk of health issues.

AO2: Application of understanding of health promotion methods in preventing and controlling obesity:

- One-to-one sessions are effective as they allow Angela to tailor her communication style, adapt the level of information and offer personalised advice and guidance to the children based on their own circumstances.
- One-to-one sessions allow Angela to give the children space to talk and ask questions without being judged by their peers.
- Group sessions are effective because they mean Angela does not have to single out children and there is less risk of children feeling stigmatised.
- Group sessions are effective because they would allow the children to learn from one another which may make the session more interactive.
- Neither the group sessions nor the one-to-one sessions include the parents of the children which is important as they might make decisions about diet and exercise for their children.

AO3: Evaluation of the two health promotion options

- Option 1 is a positive approach because it allows Angela to offer personalised guidance and advice to the children affected. The disadvantage to this approach is that other children may miss out on health promotion advice and guidance in relation to healthy eating and exercise. Angela would need to offer targeted advice to the children affected as well as more generalised advice to all other children so that everyone has access to the same advice and guidance.
- Option 1 is positive because the affected children may be more receptive to advice and guidance on a one-to-one basis, however they may feel singled out and there is a risk they are teased or stigmatised by their peers, or that they want to withdraw from the sessions. Angela will need to be discreet to ensure this does not happen.
- Option 2 is a positive approach because the children will not be singled out and they can learn together alongside their peers. The disadvantage is that the affected children may not want to speak out in front of the class through fear of embarrassment.
- Option 2 is positive because the other children will not be excluded from learning about healthy eating and exercise. The disadvantage to this approach is that the affected children may realise the advice is targeting them. Angela will need to monitor this approach to check its effectiveness and change her approach if the affected children are not fully engaging with it.
- Angela may wish to experiment with both options to check the level of engagement to attempt to measure which one is successful. Angela would need to ensure she has some baseline data to compare against. Therefore, both approaches are suitable and viable for Angela to try.
- Option 1 and option 2 target the children, which is positive as they both offer advice and guidance on healthy eating and exercise. The disadvantage is that parents are not included in these sessions, and they are the ones who have the responsibility to make decisions about eating and exercise. A more effective solution may be to run sessions with children and parents together.

Accept any other suitable response.

Mark	Descriptor
3	The answer is clearly expressed and well-structured. The rules of grammar are used with effective control of meaning overall.

	A wide range of appropriate technical terms is used effectively.
2	The answer is generally clearly expressed and sufficiently structured. The rules of grammar are used with general control of meaning overall. A good range of appropriate technical terms is used effectively.
1	The answer lacks some clarity and is generally poorly structured. The rules of grammar are used with some control of meaning and any errors do not significantly hinder the overall meaning. A limited range of appropriate technical terms is used effectively.
0	There is no answer written or none of the material presented is creditworthy. Or The answer does not reach the threshold performance level. The answer is fragmented and unstructured, with inappropriate use of technical terms. The errors in grammar severely hinder the overall meaning.

Past Paper

Section B: body systems 2

This section is worth **35** marks, plus **6** marks for the quality of written communication (QWC) and use of specialist terminology.

9 Which one of the following statements on principles of cell theory is correct?

- A **Bacterial cells are eukaryotic**
- B **Cells are the basic unit of structure in all living things**
- C **Cells in animals, plants, yeast and algae are prokaryotic**
- D **No cells are created by pre-existing cells**

[1 mark]

AO1 = 1 mark

Award **one** mark for the correct selection, up to a maximum of **one** mark:

B Cells are the most basic unit of structure and function in all living things.

10 Name the hormone given during in vitro fertilisation (IVF) to increase the number of eggs available to be fertilised.

[1 mark]

AO1 = 1 mark

Award **one** mark for the correct name, up to a maximum of **one** mark:

- FSH (Follicle stimulating hormone).

11 Khalid has been referred to a gastroenterologist following a recent episode of pancreatitis. His symptoms were unexplained weight loss and fatty stools. His tests have revealed that his pancreas is not producing enough lipase.

Explain how Khalid's reduced lipase has led to one of these symptoms.

[2 marks]

AO2 = 2 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks:

- The lack of lipase may cause an inability to break down and absorb fats (1). Without fats, Khalid is missing vital nutrients from his diet and so he is losing weight (1) **OR** as a result the fat is expelled from the body via the faeces (1).

Accept any other suitable response.

12 Define the term 'morbidity'.

[1 mark]

AO1 = 1 mark

Award **one** mark for a correct definition, up to a maximum of **one** mark:

- the state of having a disease or a medical condition

Accept any other suitable response.

13 According to the Office for National Statistics, in 2021 there were 9 641 alcohol-specific deaths. This increased to 10 048 in 2022.

Calculate the percentage increase of alcohol-specific deaths between 2021 and 2022.

You should show your working.

[4 marks]

AO2 = 4 marks

Award **one** mark for calculating the difference, and **one** mark for the correct answer, up to a maximum of **two** marks:

$$10\,048 - 9\,641 \text{ (1)}$$

$$407 \text{ (1)}$$

Award **one** mark for calculating the percentage, and **one** mark for the correct answer, up to a maximum of **two** marks:

$$100 / 9\,641 \times 407 \text{ (1)}$$

or

$$407 / 9\,641 \times 100 \text{ (1)}$$

$$= 4.22155378\% \text{ (1)}$$

Note: award both marks for a correct answer where working is not shown.

Accept any accurate rounding of 4.22155478

Accept 4.22155378 with or without the percentage sign.

14 Figure 2: thyroid cancer mortality rates in men and women

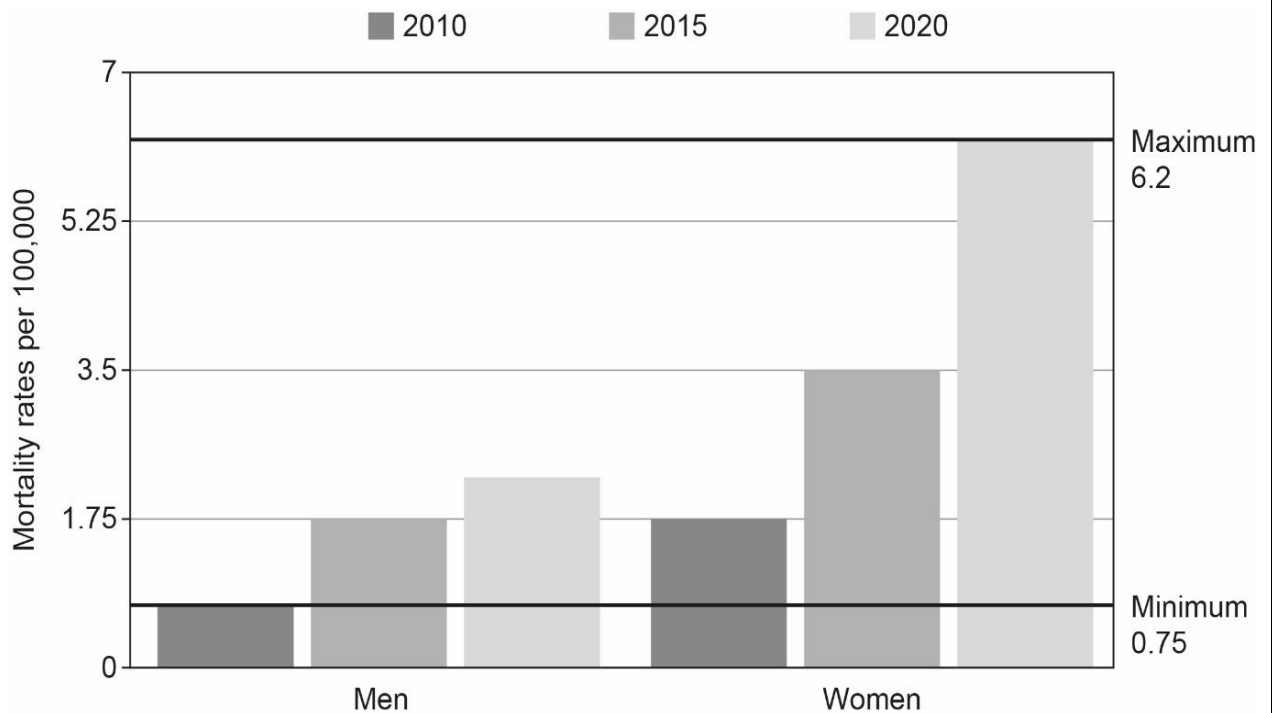


Figure 2 shows the mortality rates per 100 000 people from thyroid cancer between 2010 to 2020.

Calculate the difference in the mortality rate in women between 2010 and 2020.

You should show your working.

[2 marks]

AO2 = 2 marks

Award **one** mark for the correct answer and **one** mark for the correct calculation, up to a maximum of **two** marks:

$$6.2 - 1.75 \text{ (1)}$$

$$= 4.45 \text{ (per 100 000) (1)}$$

Award both marks for a correct answer where working is not shown.

15 Susan is 30 years of age and has visited her GP with heavy and irregular periods. Her GP states that this is most likely due to high oestrogen levels and sends her for a blood test to check the levels.

Discuss the doctor's response.

[6 marks]

AO3 = 6 marks

Award **one** mark for each discussion point, up to a maximum of **six** marks:

- Oestrogen is responsible for the growth and repair of the lining of the uterus (1). High oestrogen levels therefore may be the cause of Susan's heavy and irregular periods (1), and the doctor is correct to send her for a blood test to investigate this further (1).
- An abnormal level of progesterone could mean that the lining of the uterus is not sufficiently maintained during the second half of her menstrual cycle (1), leading to irregular bleeding (1). Therefore, the doctor is incorrect and needs to investigate the balance of reproductive hormones rather than oestrogen alone (1).
- Follicle stimulating hormone (FSH) affects oestrogen production and the growth of follicles (egg sacs) in the ovary (1), so abnormal levels of FSH may mean that Susan's menstrual periods are heavy or irregular (1). Therefore, the doctor is incorrect and needs to investigate the balance of all the reproductive hormones rather than oestrogen alone (1).
- Abnormal levels of luteinising hormone may mean that ovulation is not stimulated as normal (1). This may mean that the production of progesterone is affected (1) and may be why Susan is experiencing irregular menstrual periods, so the doctor is not fully correct in his statement (1).

Accept any other suitable response.

16 Sandrine is 27 years old and has been experiencing severe menstrual pain, pain when passing urine and pain when moving her bowels. Her GP believes it may be endometriosis and suggests the following treatment:

- **Ibuprofen 400 mg taken every 4 to 6 hours up to 4 times a day.**
- **Hormone treatment in the form of the combined oral contraceptive pill.**

Evaluate the suggestions made by Sandrine's GP.

Your response must include reasoned judgements and conclusions.

[9 marks, plus 3 marks for QWC]

AO1 = 3 marks

AO2 = 3 marks

AO3 = 3 marks

QWC = 3 marks

Band	Mark	Descriptor
3	7 to 9	<p>AO3 – Evaluation of the recommendations advised by Sandrine’s GP is comprehensive, effective and relevant, showing detailed understanding and logical and coherent chains of reasoning throughout. Makes informed conclusions that are fully supported with rational and balanced reasoned judgements.</p> <p>AO2 – Applies fully relevant knowledge of the recommendations advised by Sandrine’s GP and shows a detailed functional understanding. This is effectively linked to the scenario in the question.</p> <p>AO1 – A wide range of relevant knowledge and understanding of the symptoms of endometriosis, which is accurate and detailed.</p>
2	4 to 6	<p>AO3 – Evaluation of the recommendations advised by Sandrine’s GP is in most parts effective and mostly relevant, showing mostly logical and coherent chains of reasoning. Given conclusions are supported by reasoned judgements that consider most of the relevant arguments.</p> <p>AO2 – Applies mostly relevant knowledge of the recommendations advised by Sandrine’s GP, showing some functional understanding. This is linked to the scenario in the question.</p> <p>AO1 – Knowledge and understanding of the symptoms of endometriosis is in most parts clear and mostly accurate, although on occasion may lose focus.</p>
1	1 to 3	<p>AO3 – Evaluation of the recommendations advised by Sandrine’s GP is minimal and very limited in effectiveness and relevance. Given brief conclusions are supported by judgements that consider only basic arguments and show little relevance to the question’s aims.</p> <p>AO2 – Applies limited knowledge of the recommendations advised by Sandrine’s GP, showing a very limited functional understanding.</p> <p>AO1 – Knowledge and understanding of the symptoms of endometriosis shows very minimal accuracy, focus and relevance.</p>
	0	No creditworthy material.

Indicative content

Examiners are reminded that the indicative content reflects content-related points that a student may make but is not an exhaustive list, nor is it a model answer. Students may make all, some or none of the points included in the indicative content, as its purpose is as a guide

for the relevance and expectation of the responses. Students must be credited for any other appropriate response.

AO1 and **AO2** will be implicit through the level of evaluation and reasoned judgements and / or conclusions that the student provides.

AO1: Demonstration of understanding of symptoms and treatments, which may include:

- Endometriosis is a condition where cells like the ones in the lining of the womb (uterus) are found elsewhere in the body.
- This can cause inflammation, pain and the formation of scar tissue.
- Endometriosis can have a significant impact on a person's life in several ways, including chronic pain, fatigue / lack of energy, depression / isolation, problems with a couple's sex life / relationships, inability to conceive, difficulty in fulfilling work and social commitments.
- Unlike the cells in the womb that leave the body as a menstrual period, this blood has no way to escape.
- Pain during elimination is likely to be caused by endometriomas outside of the womb that have caused scars and adhesions on the bowel and bladder.
- Symptoms of endometriosis may be similar to those of irritable bowel syndrome; however, they can vary with the menstrual cycle, worsening in the days before and during a period.

AO2: Application of understanding of the recommended treatment:

- Sandrine may experience severe menstrual period pain which occurs because the endometriosis cells outside the uterus react the same way to those in the womb, building up and breaking down and bleeding.
- Ibuprofen is a non-steroidal anti-inflammatory drug which works by blocking hormones that occur because of injury or disease. Ibuprofen will help Sandrine to feel more comfortable and function more effectively with her activities of daily living.
- If Sandrine feels more comfortable this will have a positive effect on her mental health and engagement in daily life.
- Hormone treatments such as the combined oral contraception pill cause the uterus lining to become thinner and menstrual periods become shorter and lighter, thus reducing Sandrine's endometriosis symptoms.
- Hormone treatment reduces levels of oestrogen in Sandrine's body, preventing the lining of her womb and any endometriomas from growing quickly. This will stop the endometriosis from getting any worse.
- Surgery is another possible treatment for endometriosis that the GP has not suggested. It is the only way to effectively remove the endometriosis tissue from Sandrine's body and there are different types of surgery available to Sandrine such as laparoscopic surgery or a hysterectomy.
- Surgery may allow Sandrine to have a better quality of life.

AO3: Evaluation of the treatments recommended by the GP:

- Ibuprofen is an effective over-the-counter pain relief. Sandrine may find that this drug alone is not sufficient in managing her pain. Her GP may consider an alternative stronger pain relief to ensure that her pain is well managed.
- Ibuprofen is normally well-tolerated, and reactions and side effects are uncommon if taken correctly. Ibuprofen and other non-steroidal anti-inflammatory drugs can cause gastric irritation if consumed on an empty stomach. Sandrine will need to be educated on the risks and the importance of taking this drug after a meal.
- The combined oral contraceptive pill is an effective means of reducing oestrogen levels within the body, however this may not be effective for people with severe endometriosis, and other forms of hormone treatment may need to be explored.
- The combined oral contraceptive pill should have a positive effect on Sandrine's symptoms, reducing the severity of her pain, however the pill does have side effects and Sandrine may need to experiment with different brands until she finds one that suits her.
- Ibuprofen and combined oral contraception are first line treatments for endometriosis. Sandrine is experiencing a flare-up therefore she may have already tried these treatments. This may lead to Sandrine feeling frustrated with the care provided.
- Surgery is the only way to actually remove the endometriotic tissue from Sandrine's body, but her GP has not offered this in their recommendations. This might be because surgery for endometriosis carries risks, and the procedure is not always effective. However, without surgery Sandrine may continue to have a poor quality of life therefore the benefits outweigh the risks, and surgery is recommended for severe endometriosis.

Accept any other suitable response.

QWC mark scheme

Mark	Descriptor
3	The answer is clearly expressed and well-structured. The rules of grammar are used with effective control of meaning overall. A wide range of appropriate technical terms is used effectively.
2	The answer is generally clearly expressed and sufficiently structured. The rules of grammar are used with general control of meaning overall. A good range of appropriate technical terms is used effectively.
1	The answer lacks some clarity and is generally poorly structured. The rules of grammar are used with some control of meaning and any errors do not significantly hinder the overall meaning. A limited range of appropriate technical terms is used effectively.
0	There is no answer written or none of the material presented is creditworthy. Or The answer does not reach the threshold performance level. The answer is fragmented and unstructured, with inappropriate use of technical terms. The errors in grammar severely hinder the overall meaning.

17 **Bailey is 21 years of age and in her final year at university. She has a busy social life and enjoys playing tennis for one of the university teams. She was diagnosed with Crohn’s disease at the age of 12 and in the past year she has had several hospital admissions. This is impacting on her quality of life.**

Bailey’s consultant has recommended removing part of the diseased bowel and the formation of a temporary ileostomy (stoma) to allow Bailey to have an improved quality of life.

Evaluate the consultant’s recommendations for Bailey.

Your response must include reasoned judgements and conclusions.

[9 marks, plus 3 marks for QWC]

AO1 = 3 marks
AO2 = 3 marks
AO3 = 3 marks
QWC = 3 marks

Band	Mark	Descriptor
3	7-9	<p>AO3 – evaluation of the recommendations of the consultant is well developed, effective, and fully relevant, showing highly detailed, logical and coherent chains of reasoning throughout.</p> <p>Given conclusions are informed and are fully supported with rational and balanced judgements.</p> <p>AO2 – applies fully relevant knowledge and understanding of the consultant’s recommendations for Bailey that is well developed and highly detailed.</p> <p>AO1 – a wide range of fully relevant knowledge and understanding of Crohn’s disease that is accurate and highly detailed.</p>
2	4-6	<p>AO3 – evaluation of the recommendations of the consultant is reasonably developed, in most parts effective, and mostly relevant, showing mostly detailed, logical, and coherent chains of reasoning throughout.</p> <p>Given conclusions are supported with judgements that consider most of the relevant arguments.</p> <p>AO2 – applies mostly relevant knowledge and understanding of the consultant’s recommendations for Bailey that is mostly clear and reasonably detailed.</p> <p>AO1 – a good range of mostly relevant knowledge and understanding of Crohn’s disease that is in most parts clear and mostly accurate, although on occasion may lose focus.</p>

1	1-3	<p>AO3 – evaluation of the recommendations of the consultant is basic, in some parts effective and of some relevance, showing some but limited detailed, logical, and coherent chains of reasoning throughout.</p> <p>Given brief conclusions are supported by judgements that consider only the most basic arguments.</p> <p>AO2 – applies some relevant knowledge and understanding of the consultant’s recommendations for Bailey that is limited in detail.</p> <p>AO1 – knowledge and understanding of Crohn’s disease show some but limited accuracy, focus and relevance.</p>
	0	No creditworthy material.

Indicative content

Examiners are reminded that the indicative content reflects content-related points that a student may make but is not an exhaustive list, nor is it a model answer. Students may make all, some or none of the points included in the indicative content, as its purpose is as a guide for the relevance and expectation of the responses. Students must be credited for any other appropriate response.

AO1 and **AO2** will be implicit through the level of evaluation and reasoned judgements and / or conclusions that the student provides.

AO1: Demonstration of an understanding of the impact of Crohn's disease, which may include:

- There is currently no ‘cure’ for Crohn’s disease (CD).
- CD is a chronic inflammation of the bowel.
- The possible causes of CD are:
 - genetics / family history
 - an autoimmune response
 - smoking
 - previous gastrointestinal infection
 - altered gut bacteria.
- Symptoms of CD include:
 - diarrhoea
 - stomach ache / cramps
 - blood in faeces
 - tiredness / fatigue
 - weight loss.
- Diagnosis is made by taking a history, physical examination, blood and stool samples, colonoscopy, biopsy and MRI scan.
- The treatments for CD include:
 - steroids to reduce inflammation
 - immunosuppressants
 - changes to diet
 - biological medicines

- surgery.
- Complications of CD include scarring of the bowel which causes strictures (narrowing) and ulcers and tunnels running from one part of the bowel to another (fistulas).

AO2: Application of understanding of the consultant's recommendations for Bailey, which may include that:

- The consultant has recommended treatment that will, in the longer term, hopefully allow Bailey to have a better quality of life with fewer symptoms.
- The consultant has recommended treatment that, in the short term, will have a significant impact on Bailey's day-to-day living and her ability to take part in her usual activities.
- Bailey will be in pain after surgery therefore access to pain relief as and when needed will help her to manage her pain levels.
- Bailey is at high risk of infection therefore antibiotics will help her body to fight any bacteria from the bowel that may get into her wounds.
- Discussing altered body image with Bailey is very important. Bailey needs to be prepared for the stoma and how this may restrict her life initially.
- Discussing and demonstrating how to manage a stoma with Bailey is very important. Bailey will be assigned a stoma nurse to help her learn how to manage the stoma.
- Bailey may find it more difficult to play tennis and will need support to help her adjust to her stoma when playing sport.
- Bailey will need advice and guidance about completing her university degree, possibly by delaying surgery until she graduates.
- Bailey will require emotional support in order to be able to make the best decision about the next step of her care. Her consultant has not included this in their treatment proposal.

AO3: Evaluation of the recommendations of the consultant, which may include that:

- Bailey will be in pain post-operatively but there are side effects of pain relief which can include constipation. It is important that Bailey's pain is managed effectively. Therefore, she will need to carefully monitor her bowel movements and reduce her dose if she does become constipated. This pain may make it difficult for Bailey to continue with her university degree and so the consultant may need to take this into consideration when forming a treatment plan for Bailey.
- The creation of the ileostomy may mean that she is at a high risk of infection. Bailey will need to be very careful with personal hygiene to ensure that faecal matter does not contaminate the surgical wounds. This will make it more difficult for her to engage in her usual sporting activities as she will have to be more mindful of the stoma. This might have a negative impact on her emotional wellbeing which is not something that the consultant has planned for in their treatment plan for Bailey.
- Bailey may have an altered body image which may negatively affect her self-esteem. She will be assigned a stoma nurse who will be available to offer emotional support in the initial stages post-op. However, Bailey may need more formal ongoing mental health support for the duration of her stoma. This has not been planned for in the treatment plan from the consultant so is a missing part of the plan.
- Bailey may not be able to care for the new stoma site and may not understand how to use the stoma bags and products effectively. Bailey will have a stoma nurse who will teach her how to care for the stoma and change the bags while she is an inpatient. However, Bailey

may need ongoing support with her stoma and will need access to the stoma nurse when she is discharged. This might come in the form of a support group or counsellor who is able to support her emotional wellbeing.

- While surgery may allow Bailey to have a better quality of life and engage more fully in her studies, it may also mean she misses a significant amount of university while she is in hospital and recovering. Bailey may prefer to delay her surgery until she has finished university, thus reducing the impact. However, given how unwell she has been and her frequent admissions, she may feel that immediate surgery is the only option.

Accept any other suitable response.

Mark	Descriptor
3	The answer is clearly expressed and well-structured. The rules of grammar are used with effective control of meaning overall. A wide range of appropriate technical terms is used effectively.
2	The answer is generally clearly expressed and sufficiently structured. The rules of grammar are used with general control of meaning overall. A good range of appropriate technical terms is used effectively.
1	The answer lacks some clarity and is generally poorly structured. The rules of grammar are used with some control of meaning and any errors do not significantly hinder the overall meaning. A limited range of appropriate technical terms is used effectively.
0	There is no answer written or none of the material presented is creditworthy. Or The answer does not reach the threshold performance level. The answer is fragmented and unstructured, with inappropriate use of technical terms. The errors in grammar severely hinder the overall meaning.

Section C: body systems 3

This section is worth **30** marks, plus **6** marks for the quality of written communication (QWC) and use of specialist terminology.

18	State one role of a phagocyte.	[1 mark]
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AO1 = 1 mark

Award **one** mark for each relevant point, up to a maximum of **one** mark:

- A phagocyte surrounds and kills microorganisms.
- A phagocyte removes dead cells.
- A phagocyte can boost immune response.

Accept any other suitable response.

19 State two ways the body responds to trauma.

[2 marks]

AO1 = 2 marks

Award **one** mark for each relevant point, up to a maximum of **two** marks

- involuntary inflammatory response (1)
- loss of organ function (1)
- bone structure deformity / damage / loss of structure (1)
- haemorrhaging (1)
- multi-organ failure (1)
- ischemia (1)
- proliferation phase (1).

Accept any other suitable response.

20 Table 1: sizes of different microorganisms

Microorganism	Size of microorganism
bacterium	0.5 μm
fungus	5 μm
protist	1 mm
virus	300 nm

List the four microorganisms in size order from largest to smallest, based on the average sizes given in Table 1.

[2 marks]

AO2 = 2 marks

Award **one** mark for correctly identifying protist as the largest and virus as the smallest:

Award **one** mark for correctly identifying fungus is larger than the bacterium:

- In order from largest to smallest, microorganisms should be protist, fungus, bacterium, virus.

21 Joshua is undergoing surgery to remove part of his small intestine due to bowel disease. In a healthy small intestine, glucose is absorbed through the intestine's cell surface membrane.

Explain two ways that the surgery may affect Joshua's ability to absorb glucose.

[4 marks]

AO2 = 4 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks per way explained:

- The movement of glucose from the small intestine to the bloodstream uses co-transport mechanisms (using proteins found in the cell surface membrane) (1). Joshua's small intestine will have a reduced surface area due to part of the bowel being removed and so absorption in this way will be reduced by the surgery (1).
- The mucosa of the intestine has creases and folds called villi and they are lined with microvilli which create a large surface area (1). Following the surgery, Joshua's small intestine will have a reduced surface area for the absorption of glucose and therefore may not be able to absorb so much glucose (1).
- The small intestine has an extensive network of blood capillaries and lymphatic vessels (1). Joshua's small intestine will have a reduced network of blood capillaries and lymphatic vessels to absorb glucose via the epithelial tissue (1).

Accept any other suitable response.

Qualification Specification reference

B1.11, B2.12

22 A nurse is reading an anti-smoking blog that claims:

'The only effective treatment for chronic obstructive pulmonary disease (COPD) is to stop smoking.'

The nurse submits a comment stating this is not accurate.

Assess the nurse's comment.

[3 marks]

AO3 = 3 marks

Award **one** mark for each assessment point, up to a maximum of **three** marks:

- Some COPD cases (about 20%) are caused by exposure to environmental or occupational factors such as pollution / dust / fumes (1). In these instances, the most effective treatment may be inhalers, steroids and pulmonary rehabilitation (1). Therefore, the nurse is correct that not all cases of COPD are caused by smoking and for this group there are other treatment options (1).
- Some COPD cases are caused by genetics (such as alpha-1-antitrypsin deficiency, present in younger patients, under 45 years of age) (1). In these instances, the most effective treatment may be inhalers, steroids and pulmonary rehabilitation (1). The nurse is therefore correct that not all cases of COPD are caused by smoking and for this group there are other treatment options (1).

- The vast majority of cases of COPD are caused by smoking, and this can include those exposed to smoke via passive smoking (1). For this group, lifestyle changes such as stopping smoking are the most effective treatment for COPD (1). Therefore, the nurse is not correct in relation to the majority of cases (1).

Accept any other suitable response.

23 Anita is a 28-year-old PE teacher who has just been diagnosed with muscular dystrophy (MD). She visited her GP after experiencing fatigue, reduced muscle power, and difficulty with going up and down stairs.

Anita has a very active job and is feeling anxious about her future.

She is now under the care of an MD specialist who has recommended the following care plan:

- **taking prednisolone (a steroid) starting at 5 mg once a day**
- **having physiotherapy**
- **joining a running group.**

Evaluate the treatment plan suggested by the MD specialist.

Your response must include reasoned judgements and conclusions.

[9 marks, plus 3 marks for QWC]

AO1 = 3 marks
AO2 = 3 marks
AO3 = 3 marks
QWC = 3 marks

Band	Mark	Descriptor
3	7 to 9	<p>AO3 – Evaluation of the treatment plan is comprehensive, effective and relevant, showing detailed understanding and logical and coherent chains of reasoning throughout.</p> <p>AO2 – Applies all relevant knowledge of MD treatment on body systems showing a detailed functional understanding. This is effectively linked to the scenario in the question.</p> <p>AO1 – A wide range of relevant knowledge and understanding MD on body systems is demonstrated, which is accurate and detailed.</p>
2	4 to 6	<p>AO3 – Evaluation of the treatment plan is in most parts effective and mostly relevant, showing mostly logical and coherent chains of reasoning.</p>

		<p>AO2 – Applies mostly relevant knowledge of MD treatment on body systems showing some functional understanding. This is linked to the scenario in the question.</p> <p>AO1 – Knowledge and understanding of MD on body systems is in most parts clear and mostly accurate, although on occasion may lose focus.</p>
1	1 to 3	<p>AO3 – Evaluation of the treatment plan is in some parts effective and of some relevance, with some understanding and reasoning taking the form of generic statements with some development.</p> <p>AO2 – Applies little but some knowledge of MD treatment on body systems. May show a lack of functional understanding.</p> <p>AO1 – Knowledge and understanding of MD on body systems shows some but limited accuracy, focus and relevance.</p>
	0	No creditworthy material.

Indicative content

Examiners are reminded that the indicative content reflects content-related points that a student may make but is not an exhaustive list, nor is it a model answer. Students may make all, some or none of the points included in the indicative content, as its purpose is as a guide for the relevance and expectation of the responses. Students must be credited for any other appropriate response.

AO1 and **AO2** will be implicit through the level of evaluation and reasoned judgements and / or conclusions that the student provides.

AO1: Demonstration of understanding of MD, which may include:

- The muscular dystrophies (MD) are a group of inherited genetic conditions that gradually cause the muscles to weaken, leading to an increasing level of disability.
- MD is a progressive condition, which means it gets worse over time.
- It often begins by affecting a particular group of muscles, before affecting the muscles more widely.
- Some types of MD affect other organs or body systems, and it can become life-threatening.
- There is no cure for MD, but treatment can help to manage many of the symptoms.
- Symptoms for MD can vary from mild to severe depending on the type of MD.
- Treatments include mobility and breathing assistance, steroid medicines, creatine supplements, corrective surgery, talking therapy.
- Treatments may extend to other complications that manifest as a result of the MD.

AO2: Application of treatment options to Anita, which may include that:

- steroids will help Anita to gain muscle strength and function
- steroids will slow down Anita's muscle weakening

- Anita will need to be informed about the side effects of steroids
- physiotherapy will help Anita to build muscle strength, maintain range of movement and coordination and balance
- joining a running club may be too much for Anita and may result in her not being able to engage with her physiotherapy
- low-impact exercise such as swimming will help Anita to continue her physiotherapy. It will contribute to her physical and mental health
- physiotherapy and low-impact exercise may help Anita to have the strength to continue working as a PE teacher
- support groups will allow Anita to seek support from others who have MD
- all the treatment options will help Anita to maintain her independence.

A03: Evaluation of how the suggested treatment plan will affect the impact of MD on Anita's body systems, which may include that:

- Prednisolone will help Anita to gain muscle strength and function. However, there are risks associated with long-term steroid use such as weight gain and excessive hair growth, therefore Anita will need to assess the severity of her symptoms now and may consider delaying commencement of steroids if she does not need them.
- Physiotherapy will help Anita to build muscle, maintain range of movement and improve coordination and balance. Anita may become fatigued during these sessions due to the loss of muscle mass. Therefore, Anita will need to manage her energy levels before, during and after physiotherapy sessions.
- High-impact exercise such as running could be too much exertion for Anita to maintain her physical and mental health. Anita may become fatigued during these sessions due to the loss of muscle mass, therefore making her feel worse. Instead, Anita may want to consider low-impact exercise as a more suitable option.
- Support groups will allow Anita to seek support from others who have MD but this was not part of the treatment plan. However, group support is not suitable for everyone and can be negatively affected by other group members. Anita should try the group support environment but if this does not work then she will need to speak with her MD specialist about more options.
- If the treatment plan is not effective, Anita may want to consider corrective surgery for her MD. Surgery carries risks and it is important that all other treatment options have been explored first. However, surgery can be very effective to correct physical problems that can occur as a result of the condition.

Accept any other suitable response.

QWC mark scheme

Mark	Descriptor
3	The answer is clearly expressed and well-structured. The rules of grammar are used with effective control of meaning overall. A wide range of appropriate technical terms is used effectively.
2	The answer is generally clearly expressed and sufficiently structured. The rules of grammar are used with general control of meaning overall. A good range of appropriate technical terms is used effectively.

1	The answer lacks some clarity and is generally poorly structured. The rules of grammar are used with some control of meaning and any errors do not significantly hinder the overall meaning. A limited range of appropriate technical terms is used effectively.
0	There is no answer written or none of the material presented is creditworthy. Or The answer does not reach the threshold performance level. The answer is fragmented and unstructured, with inappropriate use of technical terms. The errors in grammar severely hinder the overall meaning.

24 Leon is a 59-year-old male who has presented at accident and emergency with chest pains and shortness of breath. Results from an electrocardiogram (ECG) lead Leon to be treated for a heart attack.

Leon has raised blood pressure, a fast pulse and raised respiration rate. He is overweight, and his cholesterol is raised.

The cardiologist diagnoses coronary heart disease (CHD) and states that given Leon’s age the only treatment option is to begin taking:

- blood-thinning medication
- statin medication
- betablocker medication.

Evaluate the cardiologist’s statement.

Your response must include reasoned judgements and conclusions.

[9 marks, plus 3 marks for QWC]

AO1 = 3 marks
 AO2 = 3 marks
 AO3 = 3 marks
 QWC = 3 marks

Band	Mark	Descriptor
3	7 to 9	<p>AO3 – Evaluation of the cardiologist’s statement is comprehensive, effective and relevant, showing detailed understanding and logical and coherent chains of reasoning throughout.</p> <p>AO2 – Applies all relevant knowledge of the impact of CHD on body systems showing a detailed functional understanding. This is effectively linked to the scenario in the question.</p> <p>AO1 – A wide range of relevant knowledge and understanding of the impact of CHD on body systems is demonstrated, which is accurate and detailed. A wide range of appropriate technical terms are used.</p>

2	4 to 6	<p>AO3 – Evaluation of the cardiologist’s statement is in most parts effective and mostly relevant, showing mostly logical and coherent chains of reasoning.</p> <p>AO2 – Applies mostly relevant knowledge of the impact of CHD on body systems showing some functional understanding of data collection. This is linked to the scenario in the question.</p> <p>AO1 – Knowledge and understanding of the impact of CHD on body systems is in most parts clear and mostly accurate, although on occasion may lose focus.</p>
1	1 to 3	<p>AO3 – Evaluation of the cardiologist’s statement is in some parts effective and of some relevance, with some understanding and reasoning taking the form of generic statements with some development.</p> <p>AO2 – Applies little but some knowledge of the impact of CHD on body systems. May show a lack of functional understanding.</p> <p>AO1 – Knowledge and understanding of the impact of CHD on body systems shows some but limited accuracy, focus and relevance.</p>
	0	No creditworthy material.

Indicative content

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AO1 and **AO2** will be implicit through the level of evaluation and reasoned judgements and / or conclusions that the student provides.

AO1: Demonstration of understanding the impact of CHD on Leon’s body systems:

- Coronary heart disease is where fatty material (atheroma) builds up inside the coronary arteries.
- Cholesterol that lines arteries can cause them to harden which prevents them from contracting and dilating normally.
- Build-up of fatty material results in the narrowing of coronary arteries.
- Blood is pumped through a narrow and rigid system, as a result blood pressure increases.
- Symptoms of CHD include:
 - shortness of breath
 - chest pain
 - pain travelling through the body
 - nausea
 - feeling faint.

- Risk factors of developing CHD are:
 - high blood pressure
 - diabetes
 - smoking
 - high cholesterol
 - family history
 - age
 - ethnic background
 - being overweight and lack of physical activity.

AO2: Application of understanding of the impact of CHD on Leon's body systems, applicable to the scenario:

- Leon's pulse and respiration rate are elevated which may be reflective of his heart and lungs having to work harder to deliver oxygen and nutrients to cells.
- Leon's cholesterol is elevated, which is a risk factor for CHD.
- Leon's blood pressure is raised, which is a risk factor for CHD.
- Leon has a body mass index (BMI) in the overweight range. Leon's excess weight, especially if it is located around his waist, may have led to fatty material building up in his arteries, increasing the risk of him having raised cholesterol and raised blood pressure.
- A blood thinner has been prescribed to prevent Leon's platelets from sticking together.
- A statin and is used to treat Leon's hypercholesterolaemia. It works by stopping his liver from making cholesterol.
- A betablocker and has been prescribed to treat Leon's hypertension. It works by changing the way the body responds to nerve impulses and slows down the heart.

AO3: Evaluation of the cardiologist's statement:

- A blood thinner is prescribed for people like Leon who are at high risk of a blood clot after a heart attack. The main risk associated with blood thinners is that Leon may bleed or bruise more easily than normal. A blood thinner is an effective means of preventing Leon from developing a dangerous blood clot.
- Statins have been prescribed for Leon to reduce the cholesterol in his blood vessels. Statins can have side effects, however they work best when taken on a long-term basis, therefore Leon should be encouraged to continue with his medication if he does get side effects.
- Betablockers have been prescribed for Leon to reduce his blood pressure. They can have side effects such as feeling sick, tired or dizzy. However, the side effects outweigh the risks associated with another heart attack or a stroke.
- Lifestyle changes to promote self-care and better health, such as taking more exercise and eating a healthy diet have not been included in Leon's treatment, however by making these changes, Leon may be able to further reduce his weight, blood pressure and cholesterol and therefore his risk from CHD.
- Surgery, such as that to insert stents or heart transplant, has not been suggested as treatment for Leon. It may be that he is not suitable for surgery, or that the medication in his treatment plan will be sufficient to manage the risk of subsequent heart attacks.

Accept any other suitable response.

QWC mark scheme

Mark	Descriptor
3	The answer is clearly expressed and well-structured. The rules of grammar are used with effective control of meaning overall. A wide range of appropriate technical terms is used effectively.
2	The answer is generally clearly expressed and sufficiently structured. The rules of grammar are used with general control of meaning overall. A good range of appropriate technical terms is used effectively.
1	The answer lacks some clarity and is generally poorly structured. The rules of grammar are used with some control of meaning and any errors do not significantly hinder the overall meaning. A limited range of appropriate technical terms is used effectively.
0	There is no answer written or none of the material presented is creditworthy. Or The answer does not reach the threshold performance level. The answer is fragmented and unstructured, with inappropriate use of technical terms. The errors in grammar severely hinder the overall meaning.

Assessment objective (AO) grid

Section A Body systems 1

Question number	AO1	AO2	AO3	Mathematics	QWC	Total
1	1*					1
2	2*					2
3		2				2
4		2		(2)		2
5 (a)		2				2
5 (b)		2				2
6			6			6
7	3	3	3		3	12
8	3	3	3		3	12
Total	9	14	12	(2)	6	41
Totals required	9 to 10 marks	14 to 16 marks	10 to 12 marks	X	6	41
Kil*	3					

Section B Body systems 2

Question number	AO1	AO2	AO3	Mathematics	QWC	Total
9	1*					1
10	1*					1
11		2				2
12	1*					1
13		4		(4)		4
14		2		(2)		2
15			6			6
16	3	3	3		3	12
17	3	3	3		3	12
Total	9	14	12	(6)	6	41
Totals required	9 to 10 marks	14 to 16 marks	10 to 12 marks	X	6	41
Kil*	3					

Section C
Body systems 3

Question number	AO1	AO2	AO3	Mathematics	QWC	Total
18	1*					1
19	2*					2
20		2		(2)		2
21		4				4
22			3			3
23	3	3	3		3	12
24	3	3	3		3	12
Total	9	12	9	(2)	6	36
Totals required	8 to 9 marks	12 to 14 marks	9 to 11 marks	X	6	36
Kil*	3					

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