



NCFE Level 1/2 Technical Award in Health and Fitness (603/2650/5)

Unit 01 Introduction to body systems and
principles of training in health and fitness

Paper number Past Paper
November 2020

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 learner
- information on how individual marks are to be awarded
- the allocated assessment objective(s) 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 learners, who must receive the same treatment. You must mark the first learner 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 learners 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 learner'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.
- The marks awarded for each response should be clearly and legibly recorded in the grid on the front of the question paper.
- 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 award a learner's response holistically and should follow a best-fit approach. The grids are broken down into levels, with each level having an associated descriptor indicating the performance at that level. You should determine the level before determining the mark.

When determining a level, you should use a bottom up approach. If the response meets all the descriptors in the lowest level, you should move to the next one, and so on, until the response matches the level descriptor. Remember to look at the overall quality of the response and reward learners positively, rather than focussing on small omissions. If the response covers aspects at different levels, you should use a best-fit approach at this stage and use the available marks within the level 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, 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 learner 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 any other suitable responses a learner may produce. It is not a requirement either, that learners must cover all of the indicative content to be awarded full marks.

Assessment objectives

This unit requires learners to:

A01	Recall knowledge and show understanding.
A02	Apply knowledge and understanding.
A03	Analyse and evaluate knowledge and understanding.

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

Qu	Mark scheme	Total marks
----	-------------	-------------

Section 1

Total for this section: 8 marks

1	Which one of the following regions of the spine is positioned directly below the cervical region? Answer: D (Thoracic)	1 AO1=1
2	What is residual volume? Answer: A (The amount of air left in the lungs following a maximal exhalation)	1 AO1=1
3	Which one of the following body shapes would an individual be classed as if they had a muscular body? Answer: C (Mesomorph)	1 AO1=1
4	Which one of the following is the formula used to calculate the maximum heart rate (MHR)? Answer: D (220 – age)	1 AO1=1
5	Which one of the following comes after the bronchioles in the pathway of air through the respiratory system during inspiration? Answer: A (Alveoli)	1 AO1=1
6	Which one of the following occurs during inspiration? Answer: B (The diaphragm contracts and the chest cavity expands)	1 AO1=1
7	Which one of the following is a health-related component of fitness? Answer: B (Cardiovascular endurance)	1 AO1=1
8	Which one of the following health and fitness activities needs agility? Answer: C (Running in and out of cones)	1 AO2=1

Section 2

Total for this section: 51 marks

9 (a)	Name one bone that is in the appendicular skeleton. Award one mark for the naming of a correct bone. • Carpals (1) • Clavicle (1) • Femur (1) • Fibula (1) • Humerus (1) • Pelvis (1) • Phalanges (1) • Radius (1) • Scapula (1) • Tarsals (1) • Tibia (1) • Ulna (1) Credit other suitable responses.	1 AO1=1
9 (b)	Name one bone that is in the axial skeleton. Award one mark for the naming of a correct bone. • Cranium/Skull (1) • Sternum (1) • Ribs (1) • Vertebrae (Individual bones which make up the vertebrae e.g., sacrum will also be accepted) (1) Credit other suitable responses.	1 AO1=1
9 (c)	Figure 1 shows a diagram of the spine. State the postural condition shown. Award one mark for the correct response. • Scoliosis (1)	1 AO3=1

10 (a)	A hinge joint is a type of synovial joint. State two other types of synovial joint. Award one mark for each type of synovial joint. • Ball and socket (1) • Condylloid (1) • Gliding (1) • Pivot (1) • Saddle (1)	2 AO1=2
10 (b)	Give one example of a flat bone. Award one mark for a correct response. • Scapula (1) • Sternum (1) • Ribs (1) • Cranium/Skull (1) • Pelvis (1) Credit other suitable responses.	1 AO1=1
10 (c)	State one function of a flat bone. Award one mark for a correct response. • Protection of organs (1) • Attachment of muscles (1)	1 AO1=1

11 (a)	Figure 2 shows two movements (A and B) that occur at the shoulder. Identify the joint action of the shoulder in movement A and movement B. Award one mark for each of the following answers. A= Adduction (1) B= Abduction (1)	2 AO2=2						
11 (b)	Use Figure 3 to complete Table 1. Identify the agonist muscle in the movement at the elbow from position A to position B and from position B to position C. Award one mark for each of the following answers. <table border="1" data-bbox="293 927 1227 1041"> <tr> <th></th><th>A to B</th><th>B to C</th></tr> <tr> <td>Agonist muscle</td><td>Triceps (1)</td><td>Biceps (1)</td></tr> </table>		A to B	B to C	Agonist muscle	Triceps (1)	Biceps (1)	2 AO2=2
	A to B	B to C						
Agonist muscle	Triceps (1)	Biceps (1)						
11 (c)	Figure 4 shows an individual performing a plank. Identify the type of muscle contraction occurring in Figure 4. Justify your answer. Award one mark for the identification of the type of muscle contraction and up to two marks for the justification. • Isometric (1) • The muscles are contracting but they are staying the same length (1) • Static position (1) Credit other suitable responses. NB If 0 marks are awarded for the muscle contraction, 0 marks can be awarded for the justification.	3 AO2=1 AO3=2						
12 (a)	Figure 5 shows muscles in the human body. Identify the muscles labelled A, B and C in Figure 5. Award one mark for each of the following answers. • A= Pectoralis Major (1)	3 AO1=3						

	• B= Trapezius (1) • C= Gluteus Maximus (1) NB For A and C, as these muscles are part of a group of muscles, learners must identify the specific muscle outlined above. If the response is a group e.g., Pectorals, then 0 marks awarded.	
12 (b)	Skeletal muscle is a type of muscle in the body. State the other two types of muscle and explain how their function in the body helps an individual doing health and fitness activities. Award two marks for each type of muscle correctly stated and two further marks for explanations of their function in the body when taking part in health and fitness activities. • Cardiac (1) - aids blood flow through the heart, which provides the oxygen for the body to exercise (1) • Smooth (1) - aids with digestion so that there is a supply of energy for exercise (1) Credit other suitable responses. NB AO2 marks should only be awarded if a link to health and fitness activities is explained.	4 AO1=2 AO2=2
12 (c)	Identify a health and fitness activity that would be suited to Type 2 fast twitch muscle fibres. Justify your answer. Award one mark for a health and fitness activity and up to three marks for the justification. • Sprinting (1) • Type 2 fast-twitch fibres have a low supply of oxygen which means energy can only be produced over a short period of time (1) • Type 2 fast-twitch fibres fatigue very quickly so only exercise over short periods of time, such as sprinting, is possible (1) • Type 2 fast-twitch fibres are capable of producing fast contractions which are needed when sprinting (1) Credit other suitable responses. NB If 0 marks are awarded for the response for the health and fitness activity, 0 marks can be awarded for the justification.	4 AO2=1 AO3=3

13 (a)	Complete Figure 6 to show the pathway of oxygenated blood during the cardiac cycle. Write the numbers from the following list in the boxes to show the correct order of the pathway. 1. Aorta 2. Left atrium 3. Left ventricle 4. Pulmonary vein Award one mark for correct placement of positions 1–4, up to a maximum of four marks. Figure 6 <pre> graph TD A[From the lungs] --> B[4] B --> C[2] C --> D[3] D --> E[1] E --> F[To the rest of the body] </pre>	4 AO1=4
----------------------	---	-------------------------------------

13 (b)	Outline the structure of arteries and explain how the structure helps them to perform their function. Award two marks for an outline of the structure and two marks for an explanation of how the structure helps the function. Structure - Thick, muscular (1), elastic walls (1), narrow lumen (1), small diameter. (1) Function - Thick, muscular walls ensure that the blood can be pumped around the whole of the body. (1) - Elastic walls allow the arteries to withstand high blood pressure. (1) - Narrow lumen ensures that blood remains at high pressure to get around the whole of the body. (1) Credit other suitable responses. NB If 0 marks are awarded for responses relating to the structure then 0 marks must be awarded for the function element.	4 AO1=2 AO2=2
14	An individual who is described as fit can also be described as healthy. Discuss whether you think this statement is true or false. Award one mark for each discursive point as to whether the statement is true or false, up to a maximum of five marks. - An individual who is fit would need good physical health to cope with the demands of their environment without fatiguing. (1) - You can be fit, but not physically healthy, for example a person could have a cold and could still participate in health and fitness activities. (1) - By being fit and active an individual's mental health would in many cases improve or be good. (1) - You can be fit but have poor mental health, for example a person may suffer from depression but goes to the gym regularly. (1) - By being fit and active an individual would be mixing with others while exercising so their mental health would be good. (1) - You can be fit, but have poor social health, for example a person may not mix well with others but still exercise on their own to keep fit. (1) Credit other suitable responses.	5 AO3=5

15 (a)	Define co-ordination and flexibility. Give one example of when you would use each in a health and fitness activity. Award one mark for the definition and one mark for an example. • Co-ordination - the ability to use different (two or more) parts of the body together smoothly and efficiently (1) for example, an individual performing a star jump. (1) • Flexibility - the range of movement round a joint (1) for example, a swimmer rotating their arms during front crawl. (1) Credit other suitable responses. Accept sporting examples, however these need to be linked to specific sporting action and not just a named sport.	4 AO1=2 AO2=2
15 (b)	Figure 7 shows an individual doing a squat jump. Identify the type of muscular strength that is needed to perform a squat jump. Justify your answer. Award one mark for identifying the type of muscular strength and two marks for the justification. • Explosive. (1) • Strength is being exerted as speed. (1) • Strength is being exerted at maximal force. (1) NB If type of strength is incorrect, but justification is correct, 0 marks to be awarded.	3 AO2=1 AO3=2

16	State three principles of training. Explain how an individual could apply each principle in health and fitness activities. Award one mark for the principle of training and one mark for the explanation. • Specificity (1) – an individual could ensure that the health and fitness activities they choose to do will work on the type of fitness they want to improve. (1) • Progression (1) - an individual should gradually increase their workload so that the body adapts and gets fitter without causing injury. (1) • Overload (1) – an individual should work harder than normal so that the body adapts to this and fitness levels increase. (1) • Reversibility (1) - an individual will make sure they do not take a long break from their health and fitness activities as this could cause them to lose fitness. (1) • Tedium (1) - an individual will vary the type of health and fitness activities they do so that they do not become bored and stop participating. (1)	6 AO1=3 AO2=3
----	---	---

Section 3

Total for this section: 21 marks

17

Explain how the structure at the knee joint allows an individual to participate in health and fitness activities.

6

AO1=2

AO2=2

AO3=2

Level	Marks	Description
3	5–6	A wide range of relevant knowledge and understanding is shown, which is accurate and detailed. Subject specific terminology is used consistently throughout. Application of knowledge and understanding is appropriate, with clear relevance to the context. Analysis and evaluation are present and very effective. The conclusions drawn are fully supported by judgements.
2	3–4	A range of relevant knowledge and understanding is shown, but may be lacking in sufficient detail, with a few errors. Subject specific terminology is used, but not always consistently. Application of knowledge and understanding is mostly appropriate, but sometimes lacks clarity, and there may be a few errors. Analysis and evaluation are present and effective but may be lacking appropriate development. There are attempts to draw conclusions, which are supported by judgements, but it is likely that some will be irrelevant.
1	1–2	A limited range of relevant knowledge and understanding is shown but is often fragmented. Subject specific terminology, if used, is often inappropriate and a lack of understanding is evident. Application of knowledge and understanding is inappropriate, with any attempt showing fundamental errors. Analysis and evaluation, if present, are of limited effectiveness. Attempts to draw conclusions, are seldom successful and likely to be irrelevant.
	0	No relevant material.

	Indicative content • Articulating cartilage: - protective covering on ends of the bones (femur, tibia) - prevents the bones rubbing together and wearing away - allows movement and participation in activities pain free • Ligaments: - join bone to bone - strengthen joints and prevent unnecessary movements and possible dislocations - by strengthening the joint it allows individuals to turn/change direction quickly with a strong base • Tendons: - join muscle to bone - help produce movement at the knee - when the hamstrings contract, they pull on the tendons that attach them to the bones of the lower leg (tibia, fibula) which causes the knee to bend - when the quadriceps contract, they pull on the tendons that attach them to the bones of the lower leg (tibia, fibula) which causes the knee to straighten - this enables individuals to run/jump and travel in many ways as part of health and fitness activities • Joint capsule: - is tough, fibrous and holds the bones in place - strengthens joints and prevents unnecessary movements and possible dislocations - by strengthening the joint it allows individuals to turn/change direction quickly with a strong base • Synovial membrane/fluid: - membrane produces fluid - this lubricates the joint reducing friction and wear - this enables an individual to move freely when participating in health and fitness activities. Credit other suitable responses.	
--	---	--

18	Emily is attempting to break her personal best for a 10km run. Her current personal best is 41 minutes. Analyse which energy system will be the most important for Emily's performance. <table border="1"> <thead> <tr> <th>Level</th><th>Marks</th><th>Description</th></tr> </thead> <tbody> <tr> <td>3</td><td>5–6</td><td> A wide range of relevant knowledge and understanding is shown, which is accurate and detailed. Subject specific terminology is used consistently throughout. Application of knowledge and understanding is appropriate, with clear relevance to the context. Analysis and evaluation are present and very effective. The conclusions drawn are fully supported by judgements. </td></tr> <tr> <td>2</td><td>3–4</td><td> A range of relevant knowledge and understanding is shown, but may be lacking in sufficient detail, with a few errors. Subject specific terminology is used, but not always consistently. Application of knowledge and understanding is mostly appropriate, but sometimes lacks clarity, and there may be a few errors. Analysis and evaluation are present and effective but may be lacking appropriate development. There are attempts to draw conclusions, which are supported by judgements, but it is likely that some will be irrelevant. </td></tr> <tr> <td>1</td><td>1–2</td><td> A limited range of relevant knowledge and understanding is shown but is often fragmented. Subject specific terminology, if used, is often inappropriate and a lack of understanding is evident. Application of knowledge and understanding is inappropriate, with any attempt showing fundamental errors. Analysis and evaluation, if present, are of limited effectiveness. Attempts to draw conclusions, are seldom successful and likely to be irrelevant. </td></tr> <tr> <td></td><td>0</td><td>No relevant material</td></tr> </tbody> </table>	Level	Marks	Description	3	5–6	A wide range of relevant knowledge and understanding is shown, which is accurate and detailed. Subject specific terminology is used consistently throughout. Application of knowledge and understanding is appropriate, with clear relevance to the context. Analysis and evaluation are present and very effective. The conclusions drawn are fully supported by judgements.	2	3–4	A range of relevant knowledge and understanding is shown, but may be lacking in sufficient detail, with a few errors. Subject specific terminology is used, but not always consistently. Application of knowledge and understanding is mostly appropriate, but sometimes lacks clarity, and there may be a few errors. Analysis and evaluation are present and effective but may be lacking appropriate development. There are attempts to draw conclusions, which are supported by judgements, but it is likely that some will be irrelevant.	1	1–2	A limited range of relevant knowledge and understanding is shown but is often fragmented. Subject specific terminology, if used, is often inappropriate and a lack of understanding is evident. Application of knowledge and understanding is inappropriate, with any attempt showing fundamental errors. Analysis and evaluation, if present, are of limited effectiveness. Attempts to draw conclusions, are seldom successful and likely to be irrelevant.		0	No relevant material	6 AO1=2 AO2=2 AO3=2
Level	Marks	Description															
3	5–6	A wide range of relevant knowledge and understanding is shown, which is accurate and detailed. Subject specific terminology is used consistently throughout. Application of knowledge and understanding is appropriate, with clear relevance to the context. Analysis and evaluation are present and very effective. The conclusions drawn are fully supported by judgements.															
2	3–4	A range of relevant knowledge and understanding is shown, but may be lacking in sufficient detail, with a few errors. Subject specific terminology is used, but not always consistently. Application of knowledge and understanding is mostly appropriate, but sometimes lacks clarity, and there may be a few errors. Analysis and evaluation are present and effective but may be lacking appropriate development. There are attempts to draw conclusions, which are supported by judgements, but it is likely that some will be irrelevant.															
1	1–2	A limited range of relevant knowledge and understanding is shown but is often fragmented. Subject specific terminology, if used, is often inappropriate and a lack of understanding is evident. Application of knowledge and understanding is inappropriate, with any attempt showing fundamental errors. Analysis and evaluation, if present, are of limited effectiveness. Attempts to draw conclusions, are seldom successful and likely to be irrelevant.															
	0	No relevant material															

	Indicative content • The aerobic energy system is when energy is supplied by breaking down food (mainly glucose) using oxygen. • Glucose + oxygen → energy + carbon dioxide + water. • It is used over longer periods of time (1 min +). • This happens at low to moderate levels of exercise such as walking and jogging. • When Emily completes her run, it will be at a moderate intensity then she will be using her aerobic system. • As Emily will also be working over 1 minute then the aerobic system will be her main energy source. • By maintaining exercise intensity in the aerobic energy system, it will prevent the build-up of lactic acid and therefore prevent fatigue. • The anaerobic energy system is used when the energy needed for exercise is provided without being dependent on oxygen. • Glucose → energy + lactic acid. • It is used for activities lasting less than a minute. • This happens during high intensity exercise such as sprinting. • If Emily works at a high intensity such as sprinting at the end of the run or at the beginning of the run to get a good position, then it may result in her anaerobic system being the main energy source. • However, these high-intensity exercises produce lactic acid as a waste product. • The aerobic energy system becomes important in helping to remove this lactic acid. This will supply the energy when recovering from this strenuous activity allowing the lactic acid to be removed from the body. • This reduces fatigue as the lactic acid is removed from the body. Credit other suitable responses.	
--	--	--

19	When participating in health and fitness activities, the short-term effects on the body have a negative impact on performance. Discuss whether you think this statement is true or false. <table border="1" data-bbox="293 412 1244 2033"> <thead> <tr> <th>Level</th><th>Marks</th><th>Description</th></tr> </thead> <tbody> <tr> <td>3</td><td>7–9</td><td> A wide range of relevant knowledge and understanding is shown, which is accurate and detailed. Subject specific terminology is used consistently throughout. Application of knowledge and understanding is appropriate, with clear relevance to the context. Analysis and evaluation are present and very effective. The conclusions drawn are fully supported by judgements. </td></tr> <tr> <td>2</td><td>4–6</td><td> A range of relevant knowledge and understanding is shown, but may be lacking in sufficient detail, with a few errors. Subject specific terminology is used, but not always consistently. Application of knowledge and understanding is mostly appropriate, but sometimes lacks clarity, and there may be a few errors. Analysis and evaluation are present and effective but may be lacking appropriate development. There are attempts to draw conclusions, which are supported by judgements, but it is likely that some will be irrelevant. </td></tr> <tr> <td>1</td><td>1–3</td><td> A limited range of relevant knowledge and understanding is shown but is often fragmented. Subject specific terminology, if used, is often inappropriate and a lack of understanding is evident. Application of knowledge and understanding is inappropriate, with any attempt showing fundamental errors. Analysis and evaluation, if present, are of limited effectiveness. Attempts to draw conclusions, are seldom successful and likely to be irrelevant. </td></tr> <tr> <td></td><td>0</td><td>No relevant material</td></tr> </tbody> </table>	Level	Marks	Description	3	7–9	A wide range of relevant knowledge and understanding is shown, which is accurate and detailed. Subject specific terminology is used consistently throughout. Application of knowledge and understanding is appropriate, with clear relevance to the context. Analysis and evaluation are present and very effective. The conclusions drawn are fully supported by judgements.	2	4–6	A range of relevant knowledge and understanding is shown, but may be lacking in sufficient detail, with a few errors. Subject specific terminology is used, but not always consistently. Application of knowledge and understanding is mostly appropriate, but sometimes lacks clarity, and there may be a few errors. Analysis and evaluation are present and effective but may be lacking appropriate development. There are attempts to draw conclusions, which are supported by judgements, but it is likely that some will be irrelevant.	1	1–3	A limited range of relevant knowledge and understanding is shown but is often fragmented. Subject specific terminology, if used, is often inappropriate and a lack of understanding is evident. Application of knowledge and understanding is inappropriate, with any attempt showing fundamental errors. Analysis and evaluation, if present, are of limited effectiveness. Attempts to draw conclusions, are seldom successful and likely to be irrelevant.		0	No relevant material	9 AO1=3 AO2=3 AO3=3
Level	Marks	Description															
3	7–9	A wide range of relevant knowledge and understanding is shown, which is accurate and detailed. Subject specific terminology is used consistently throughout. Application of knowledge and understanding is appropriate, with clear relevance to the context. Analysis and evaluation are present and very effective. The conclusions drawn are fully supported by judgements.															
2	4–6	A range of relevant knowledge and understanding is shown, but may be lacking in sufficient detail, with a few errors. Subject specific terminology is used, but not always consistently. Application of knowledge and understanding is mostly appropriate, but sometimes lacks clarity, and there may be a few errors. Analysis and evaluation are present and effective but may be lacking appropriate development. There are attempts to draw conclusions, which are supported by judgements, but it is likely that some will be irrelevant.															
1	1–3	A limited range of relevant knowledge and understanding is shown but is often fragmented. Subject specific terminology, if used, is often inappropriate and a lack of understanding is evident. Application of knowledge and understanding is inappropriate, with any attempt showing fundamental errors. Analysis and evaluation, if present, are of limited effectiveness. Attempts to draw conclusions, are seldom successful and likely to be irrelevant.															
	0	No relevant material															

	Indicative content • Hydration levels: - the level of water in the body - when an individual exercises the body starts to sweat, body fluid is lost, and hydration levels decrease - this can cause dehydration, whereby the blood becomes thick (viscous) - this could affect decision-making as well as a lack of energy which are negative effects on performance • Muscle fatigue: - if participating in strenuous exercise, muscles start to build up lactic acid - muscle function can be negatively affected, and fatigue occurs - performance levels will therefore decrease, and participation may have to cease • Breathing rate: - number of breaths per minute - this increases when taking part in exercise - the body's muscles need more oxygen for gaseous exchange to make energy - this would be positive for performance as this will mean participation at a high level will be able to be maintained for a longer period of time • Heart rate: - number of heartbeats per minute - this increases when taking part in exercise - this forces blood to the working muscles quicker - more gaseous exchange can take place, so more energy is being produced - this would be positive for performance as this will mean participation at a high level will be able to be maintained for a longer period of time - however, if heart rate gets too high for a period of time it could lead to an individual becoming dizzy and having to stop exercising. • Stroke volume: - this is the amount of blood ejected from the heart ventricles per beat (contraction) - this increases during exercise to pump more blood out meaning more blood is getting to the working muscles - more gaseous exchange can take place, so more energy is being produced - this would be positive for performance as this will mean participation at a high level will be able to be maintained for a longer period of time • Cardiac output: - this is the volume of blood pumped out of the heart per minute	
--	--	--

	- as heart rate and stroke volume increase during exercise, so does cardiac output - this forces blood to the working muscles quicker - more gaseous exchange can take place, so more energy is being produced - this would be positive for performance as this will mean participation at a high level will be able to be maintained for a longer period of time • Blood pressure: - increases with exercise - during exercise it is important to increase the flow of blood to muscles to provide them with oxygen - as blood pressure increases, the heart forces blood out of the ventricles with more pressure - more gaseous exchange can take place, so more energy is being produced - this would be positive for performance as this will mean participation at a high level will be able to be maintained for a longer period of time - if exercise was too intense then an individual's blood pressure may get too high which could result in them having to stop participating • Body temperature (sweating): - this increases with exercise - up to 70% of the energy that powers muscles during exercise is lost as heat - this heat has to be lost by the body and blood is pushed closer to the skin to do this - as a result, overheating is avoided, and exercise can continue - however, if the body is unable to get rid of heat, due to humidity or high temperatures, then it could suffer from heat exhaustion which could cause an individual to make errors or stop participating • Delayed onset of muscular soreness (DOMS): - this occurs 24-48 hours after exercise - caused by small tears in the muscle fibres as a result of exercise - this would not affect the performance of an individual when taking part. However, if it occurs it could affect future performance in that 24-48-hour period. Credit other suitable responses.	
--	--	--

Assessment Objective Grid

Question	AO1	AO2	AO3	Total
1	1			1
2	1			1
3	1			1
4	1			1
5	1			1
6	1			1
7	1			1
8		1		1
9a	1			1
9b	1			1
9c			1	1
10a	2			2
10b	1			1
10c	1			1
11a		2		2
11b		2		2
11c		1	2	3
12a	3			3
12b	2	2		4
12c		1	3	4
13a	4			4
13b	2	2		4
14			5	5
15a	2	2		4
15b		1	2	3
16	3	3		6
17	2	2	2	6
18	2	2	2	6
19	3	3	3	9
Total	36	24	20	80