New Specification

Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
2017

Sports Science and the Active Leisure Industry

Unit AS 2

The Active Leisure Industry: Health, Fitness and Lifestyle

[SAL21]

TUESDAY 23 MAY, MORNING

MARK SCHEME

MARK SCHEMES

Foreword

Introduction

Mark Schemes are published to assist teachers and students in the preparation for examinations. Through the mark schemes teachers and students will be able to see what examiners are looking for in response to questions and exactly where the marks have been awarded. The publishing of the mark schemes may help to show that examiners are not concerned about finding out what a student does not know but rather with rewarding students for what they do know.

The Purpose of Mark Schemes

Examination papers are set and revised by teams of examiners and revisers appointed by the Council. The teams of examiners and revisers include experienced teachers who are familiar with the level and standards expected of 18-year-old students in schools and colleges. The job of the examiners is to set the questions and the mark schemes; and the job of the revisers is to review the questions and mark schemes commenting on a large range of issues about which they must be satisfied before the question papers and mark schemes are finalised.

The questions and mark schemes are developed in association with each other so that the issues of differentiation and positive achievement can be addressed right from the start. Mark schemes therefore are regarded as a part of an integral process which begins with the setting of questions and ends with the marking of the examination.

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all markers are following exactly the same instructions and making the same judgements in so far as this is possible. Before marking begins a standardising meeting is held where all the markers are briefed using the mark scheme and samples of the students' work in the form of scripts. Consideration is also given at this stage to any comments on the operational papers received from teachers and their organisations. During this meeting, and up to and including the end of the marking, there is provision for amendments to be made to the mark scheme. What is published represents this final form of the mark scheme.

It is important to recognise that in some cases there may well be other correct responses which are equally acceptable to those published: the mark scheme can only cover those responses which emerged in the examination. There may also be instances where certain judgements may have to be left to the experience of the examiner, for example, where there is no absolute correct response – all teachers will be familiar with making such judgements.

The Council hopes that the mark schemes will be viewed and used in a constructive way as a further support to the teaching and learning processes.

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1 **(a)** Answers may address some of the following points:

- Frequency – Train more often, increasing the number of times the athletes train. As levels of performance rise then the frequency of training is often increased.
- Intensity – Train harder, increasing the difficulty of the exercise for the athletes, raising the workload.
- Type – Use different forms of exercise/activity, increase the difficulty of the training. All training must be relevant to the activity or sport. For example a cyclist will perform most of their training on a bike. Actions from the activity should also be replicated during training. Specificity does not just apply to muscle groups and fibre types but also to the energy system which is predominantly used in the activity.
- Time – Duration, training for longer. Increasing the length of time that the athletes are training for each session. This is determined by the activity and the fitness of the performer.

Award [1] mark for key phrase and up to [2] marks for the explanation.
All other valid points will be given credit.
(AO2) [2]

(b) Answers may address some of the following points:

(i) Continuous training:

- Involves continuous activity with no rest or break. Usually associated with developing VO_2 max. Involves a steady state of sub-maximal work (running, cycling, swimming, rowing) for prolonged periods of time (20–30 minutes plus).
- It is more suited to long distance/endurance athletes, when the oxygen demands of the training are met by the supply from the cardiovascular system.
- The heart rate should be above the critical threshold. Heart rate will depend on the specific training goals of the session undertaken by the athlete.
- Constant intensity, with no rest periods. Exercise intensity should be designed to improve cardiorespiratory endurance and muscular endurance.

(ii) Weight training:

- Weight training uses weights to provide resistance to the muscles. It improves muscular strength (high weight, low repetitions), muscular endurance (low weight, high repetitions, many sets) and power (medium weight and repetitions performed quickly).
- Weight training is an intermittent training method that uses free weights, resistance machines or both to overload the body. The resistance is determined by working at a percentage of the athlete's 1 rep max. The session can be divided into sets and repetitions, which can be manipulated to stress the required aspect of strength.
- Weight training is a form of interval training and can be used to develop several components of fitness such as strength and strength endurance depending on the resistance, number of repetitions, sets and rest relief.
- Exercises, duration, intensity, repetitions, sets and rest intervals can be varied to add variety or achieve different goals.
- Specific muscle groups can be worked by the choice of appropriate exercises.
- Correct techniques and safety are essential to maximise training effect.

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- T.U.T. – Time Under Tension.

Award [1] mark for a brief description and up to [2] marks for a full description.
All other valid points will be given credit.
(2 × [2])
(AO2) [4]

(c) Answers may address some of the following points:

(i) Risk assessment:

- Risk assessment is a technique used for preventing accidents and ill health by helping people to think about what could go wrong and ways to prevent problems. The coach must be aware that risk assessment is good practice and it is also a legal requirement.
- A coach has a duty of care to assess risks by identifying them and applying control measures to avoid injury.
- The coach must ensure that the venues used, for example sports hall, gym or pitch, have been checked to make sure that the playing surface is free from hazards that could cause the athlete an injury.
- The coach must check the equipment to ensure that it is safe and up to the specific standard for safe usage.
- The coach must check the nature of the training programme to ensure that it is appropriate for the athlete and will not cause an injury.
- The coach must check the personal attire of the athlete and ensure clothing is suitable for the activity undertaken, for example no jewellery which could cause injury/hair tied back so as the athlete can see clearly at all times/appropriate footwear for the surface being used to provide good grip.

(ii) Correct lifting technique:

- The coach must make sure that he/she is applying safe techniques to lifting, which is essential for safety.
- The coach must consider the capability/age/strength of the individual to use/lift/transport any equipment. If it is heavy they may need to work in pairs/group to avoid injury.
- The coach must consider the nature of the equipment being used by athletes and must ensure the athletes have been taught the correct techniques.
- Correct lifting technique when weight training must be coached specifically to avoid the risk of injury. The coach must insist that this correct technique is used consistently.
- The coach must ensure that the resistance being used must be appropriate to the age, maturity and experience of the athlete to avoid injury.
- Use of “spotters” to assist the athlete.

(iii) Avoidance of contraindicated exercises:

- A contraindicated exercise is a movement that is not recommended because it is potentially dangerous. For example, extreme movements that cause extension or flexion of a joint beyond its normal range, e.g. full circle neck rotations/movements that involve excessive, rapid or repetitive twisting around a fixed base, e.g. trunk rotations/sustained or held movements, e.g. held sit-up/repetitive movements, e.g. arm circling through a small range of movement.
- The coach must use safe stretching exercises during the warm up to prevent joint injury.

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- The coach must consider if the exercise has an underlying value that is apt to benefit the target athletes. The coach needs to be aware if the exercise being performed presents an element that could make it inappropriate for some individuals in the training group. Some exercises are sport specific and are not suitable for all performers.

Award [1] mark for a brief explanation and up to [2] marks for a full explanation.
All other valid points will be given credit.
(3 × [2])
(AO2) [6]

(d) The quality of written communication is assessed in this question.

Answers may address some of the following points:

- Endurance athletes need to be able to exercise for prolonged periods of time. They will need a strong, well trained cardiovascular system and a balanced diet which is high in carbohydrates and fats for aerobic energy production.
- Endurance athletes will follow a carefully planned endurance programme which allows for periods of rest for the body systems and stress relief.
- Lifestyle choices affect daily life and impact directly on health and fitness.
- Lifestyle factors such as sleep, diet, and other behaviours affect performance. Coaches will encourage all athletes to lead a healthy lifestyle which includes enough sleep, rest and recovery, eating a healthy diet and avoiding unhealthy behaviours such as smoking, drinking alcohol and using drugs or banned substances.
- An endurance athlete will be engaging in an endurance training programme, regularly during the week. e.g. Continuous running, aerobic interval running and Fartlek training. This training will lead to improvements in efficiency of the cardiovascular (Bradycardia, increased cardiac output and stroke volume, hypertrophy) and respiratory systems (stronger respiratory muscles, increased respiratory volumes). These will all maintain and improve good health.
- Physical activity will have a positive effect on the endurance athlete; by increasing aerobic capacity they can be more efficient in endurance activities and also help prevent Coronary Heart Disease (CHD) and other conditions.
- Athletes need to be aware of the importance of sleep. Both quality and quantity of sleep are important so the athlete is physically able to perform at their highest level. Lack of sleep leads to under par performances.
- A well-balanced diet is essential for effective performance in sport and general well-being. A diet rich in fruit and vegetables and complex carbohydrates can increase longevity and prevent chronic diseases such as cardiovascular disease, obesity and some cancers, while a diet high in fat, particularly saturated fat, salt and simple carbohydrates (such as sugars), increases the risk of these chronic diseases.
- An endurance athlete's diet may be adjusted before competition to "carbohydrate load".
- A poor diet, coupled with inactivity, can lead to individuals becoming overweight or even obese, which is an excessive accumulation of body fat. The excess weight could impact negatively on performance.

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- Smoking can increase the risk of some forms of cardiovascular disease. The endurance athlete needs a good cardiovascular system to aid performance. Smoking particularly impacts negatively on levels of aerobic fitness.
- Endurance athletes need to be aware of the impact of smoking as it restricts transport of oxygen; carbon monoxide contained in cigarette smoke combines with haemoglobin and restricts oxygen absorption.
- If an endurance athlete smokes it will cause narrowing of the respiratory airways. Inflammation of the lining of the respiratory airways and alveoli can restrict the passage of air and impede gaseous exchange and, therefore, the movement of oxygen into the bloodstream.
- Endurance athletes need to be aware of the dangers of alcohol; for example it can cause mouth/throat/oesophagus damage – cancer, cirrhosis of the liver which could lead to death, damage to stomach, nervous system, weaken the heart and increase risk of heart attack. An endurance athlete needs to have strong heart and lungs to maintain prolonged periods of activity.
- Alcohol use impedes muscle growth. Not only does working out under the influence of alcohol increase the endurance athlete's chance of injury, but it can impede muscle growth. Long-term alcohol use diminishes protein synthesis, resulting in a decrease in muscle growth.
- Alcohol dehydrates the athlete's body. Alcohol has been shown to slow muscle recovery because it is a powerful diuretic that can cause dehydration and electrolyte imbalances. When dehydrated, an endurance athlete is at greater risk for cramps, muscle pulls and muscle strains.
- Alcohol prevents muscle recovery. Getting enough rest is essential for the recovery process of the endurance athlete. Drinking alcohol negatively affects sleep patterns.

All other valid points will be given credit.

Level 1 ([1]–[3])

Overall impression: Basic

- Basic knowledge and understanding of how lifestyle choices can have an effect on an endurance athlete's health.
- Demonstrates a basic ability to discuss how lifestyle choices can have an effect on an endurance athlete's health.
- Quality of written communication is basic. The candidate makes a limited selection and use of an appropriate form and style of writing. The organisation of material may lack clarity and coherence. There is little use of specialist vocabulary. Presentation, spelling, punctuation and grammar may be such that intended meaning is not clear.

Level 2 ([4]–[6])

Overall impression: Good

- Good knowledge and understanding of how lifestyle choices can have an effect on an endurance athlete's health.
- Demonstrates a good ability to discuss how lifestyle choices can have an effect on an endurance athlete's health.
- Quality of written communication is good. The candidate makes a reasonable selection and use of an appropriate form and style of writing. Relevant material is organised with some clarity and coherence. There is adequate use of specialist vocabulary. Presentation, spelling, punctuation and grammar are sufficiently competent to make meaning clear.

Level 3 ([7]–[8])

Overall impression: Excellent

- Excellent knowledge and understanding of how lifestyle choices can have an effect on an endurance athlete's health.
- Demonstrates an excellent ability to discuss how lifestyle choices can have an effect on an endurance athlete's health.
- Quality of written communication is excellent. The candidate successfully selects and uses an appropriate form and style of writing. Relevant material is organised with a degree of clarity and coherence. There is extensive and accurate use of specialist vocabulary. Presentation, spelling, punctuation and grammar are of a high standard and ensure the meaning is clear.

[0] is awarded for a response not worthy of credit.
(AO1, AO3) [8]

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2 (a) Answers may address some of the following points:

(i) Weight lost:

- Weight lost during physical activity is mainly water, due to sweating more; this is greater in hot environments.
- If muscle glycogen breakdown exceeds its replacement, glycogen stores become depleted. The result is fatigue and inability to maintain training and intensity.
- If an athlete loses 2% of body weight as sweat, this can impair performance. 2% of body weight equals 10% in performance, 5% of body weight equals 25% of performance and 8% of body weight can be fatal for the athlete.
- The body tries to compensate; the heart beats faster, putting the body under greater stress.
- Due to weight lost during physical activity there is an increase in blood pressure, decrease in stroke volume, impaired ability of the body to lose heat, impaired ability of the blood to carry and deliver oxygen, loss of efficiency and cramping of the muscles.
- Loss of electrolytes, sodium and calcium; this will have an impact on the athlete's performance.

(ii) Dehydration:

- Dehydration could be caused by overheating, insufficient hydration or caused by climatic conditions. More hydration will be needed in humid or hot climates.
- If an athlete does not replace the lost water, the core body temperature will rise which brings with it a number of performance inhibitors. The blood becomes 'thicker' or more viscous which slows down the flow to the working muscles.
- The loss of electrolytes through sweating can cause fatigue and cramps, so it is essential that performers remain hydrated.
- Greater fluid loss and severe hydration leads to further overheating and the breakdown of the body has a major impact on the performance.

(iii) Promote recovery:

- An athlete's diet can aid the recovery process. Quick ingestion of carbohydrates will speed up recovery. Water will re-hydrate the body. Electrolyte replenishment is needed to aid the metabolic process. Protein is needed to aid growth and repair of tissue damage.
- Athletes can promote recovery by:

  Prior to the event:
  - Drink 400–600 ml of fluid 2–3 hours prior, and then 150–350 ml about 15 mins before the event.
  - Eat a meal or snack, high in carbohydrate, 2–4 hours before.

  During the event:
  - Performers should ingest water, carbohydrate and electrolytes whenever possible.
  - Ingest small amounts of a range of carbohydrates with different glycaemic index ratings (how quickly they are converted to glucose and enter the bloodstream) to maintain a sustained level of blood sugar.

  After the event:
  - Electrolytic drink.
  - Revert back to normal diet, with plenty of fluids.

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- Sports drinks are often used by endurance performers during training and recovery to maintain blood glucose levels, replace lost fluids and electrolytes. This ensures optimum performance during the activity and facilitates recovery. Isotonic drinks can also be taken which can help to replace electrolytes lost through sweating and prevent irritations such as muscle cramps.
- Performing a cool down can help to reduce recovery time, removal of lactate build up and waste products, repayment of oxygen debt, prevention of blood pooling, assists in the reduction of delayed onset of muscle soreness (DOMS).
- Ice baths; athletes could immerse parts of the body/whole body in iced water which can aid the recovery process, especially for those athletes who have experienced high impact during their performance.
- Compression clothing; the use of compression clothing, e.g. elastic shorts, tights and vests, has become increasingly widespread among sport. Research shows that this type of clothing gives better muscle alignment and structure, which reduces muscle damage and improves circulation.

Award [1] mark for identification of key phrase and up to [2] marks for full explanation.
All other valid points will be given credit.
(3 × [3])
(AO1, AO2) [9]

(b) Answers may address some of the following points:

(i) Reasons for using illegal drugs:

- Erythropoietin (EPO) stimulates the bone marrow to produce more red blood cells and therefore enhances the oxygen carrying capacity of the blood, this means that an athlete can train and race for longer.
- Anabolic steroids are typically taken orally or injected and facilitate the storage of protein and the growth of lean muscle mass – used by some power athletes. This will increase the strength and power for aggressive sports.
- Human Growth Hormone (HGH) is a synthetic hormone that mimics the body's naturally occurring growth hormone that facilitates protein synthesis and increases lean muscle mass. An increase in muscle mass is directly linked to an increase in muscle strength and HGH is therefore illegally used in a wide range of sporting activities from e.g. weightlifting, rugby.
- Beta blockers are a type of medication that can be used by sports performers to lower metabolic activity, reducing heart rate and blood pressure and, therefore, help to steady nerves and stop trembling. Consequently beta blockers are illegally used in activities such as archery.
- Physiological reasons – To build muscle, increase energy, increase oxygen transport, lose weight, to train harder or to mask injury and reduce tiredness.
- Psychological reasons – To steady nerves, to increase aggression, to increase motivation.
- Social reasons – Pressure to win from coaches, peers and media. By winning the athlete can earn more money and they are prepared to 'win-at-all-costs'.

(ii) Consequences:

- Erythropoietin (EPO) leads to increased haemoglobin content and increased VO_2 max; it can have fatal consequences. The increase in the number of blood cells dramatically increases the viscosity of the blood, which can lead to clotting and heart failure.
- Risks include liver damage; heart failure; increased aggression and mood swings commonly referred to as 'roid rage'; development of masculine effects in females such as deepening of the voice and growth of facial hair. In males, testicular atrophy, reduced sperm count, baldness and breast development.
- There are a number of health risks associated with the use of HGH which include the enlargement of internal organs, such as the heart, which can lead to heart failure and high blood pressure, the abnormal development of bone tissue that causes the broadening of facial features, hands and feet as well as an increased risk of some cancers.
- Associated side effects of beta blockers are low blood pressure and chronic fatigue.
- Stripped of medals/titles/prize money.
- Banned from competitions.
- Loss of sponsorship.
- Loss of credibility in the sports community/no longer a role model.
- Legality, against the law of the land and against the laws of sport.
- Role modelling, gives a bad example to others, especially young people who may copy their heroes and put their health at risk. Gives a bad image to sport and lowers its status.
- Fame, fortune and success if use goes undetected.

Award [1] mark for each factor identified and up to [4] marks for full explanation.
(2 × [5])
(AO1, AO2) [10]

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3 **(a)** **(i)** Answers may address some of the following points:

- Coaches must be aware that the main problem with the stress response of the body is that the more it is triggered the harder it is to deactivate. So even if the immediate situation has passed, the stress hormones in the body, heart rate and blood pressure remain elevated. This takes a heavy toll on the body and can contribute to chronic illnesses, such as cardiovascular disease.
- Stress must be managed by the coach as it can affect the athlete's health in the following physiological ways – cardiovascular diseases, e.g. coronary heart disease, high blood pressure, ulcers, irritable bowel syndrome, autoimmune diseases, skin conditions, migraines. These will lead to under par performance in both training and competition.
- The coach also needs the athlete to be mentally healthy to perform at their best. Stress in the athlete can cause worry, apprehension, inability to make decisions, narrowing of attention, limited direction of attention, feeling of lack of control, feeling overwhelmed and negative self talk. These will each have a negative effect on performance.
- Some athletes pressure themselves a great deal to perform well and achieve athletic success. This self-imposed pressure can lead to significant stress. Coaches should create a supportive team atmosphere and help adopt positive attitudes in order to help athletes deal with the stress resulting from high expectations.

(ii) Answers may address some of the following points:

- Exercise in almost any form can act as a stress reliever. Being active can boost the feel-good endorphins released in the brain.
- Exercise has a positive effect on blood pressure, helping prevent hypertension.
- Immediately after exercising, an athlete can experience a feeling of well-being and a reduction in anxiety.
- Exercise can cause a long-term increase in work performance and therefore a more positive attitude to work.
- Improved self-esteem and self-confidence; it can relax individuals and it can lower the symptoms associated with stress and anxiety.
- Exercise promotes social interaction, giving the athlete a feeling of acceptance.
- Exercise can influence good sleep patterns enabling the athlete to be better prepared to train and compete.
- Exercise will help manage weight. Excess weight gain can cause stress.

Award [1] mark for key phrase and up to [2] marks for the explanation.
All other valid points will be given credit.
(2 × [3])
(AO1, AO2) [6]

(b) Answers may address some of the following points:

(i) **Short-term physical benefits:**

- Cardiorespiratory system – Encourages the heart and lungs to keep working at a higher level than resting, therefore promoting good heart health and healthy lungs into later life.
- Muscular system – Exercise increases muscle temperature. The warmer the muscle the more pliable it becomes. The muscle tissue

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is able to stretch to greater lengths without tearing. This helps to stop flexibility decreasing in the older adult. As muscle tissue warms up, the rate of nervous impulses being sent increases. Heat therefore increases the speed of nervous transmission which is important to maintain in an older athlete.

- Skeletal system – Increased range of movement due to increased production of synovial fluid. This is because exercise means the joints are moving quickly, so there needs to be more synovial fluid in the joints to allow this movement. The joints become warmer; the synovial fluid becomes thinner, making movement more efficient. This gives increased movement and mobility of the joints. As the joints get warmer there is an increased elasticity of tendons and ligaments. Older people tend to stiffen up so this is a very important benefit to maintain a good range of movement at the joints.

(ii) Long-term physical benefits:

- Muscular system – Hypertrophy and hyperplasia which will help maintain strength and tone in the older athlete. This will help them to still engage in manual activities and prevent other conditions.
- Skeletal system – Maintains strength and stretch of connective tissue (tendons and ligaments), bone density is maintained so if the older adult falls then they have strong bones which should not break, the thickening of hyaline cartilage and increased production of synovial fluid should help to maintain good movement in the joints so that the older person does not stiffen up and become immobile.
- Cardiovascular system – Causes cardiac hypertrophy which leads to increases in stroke volume and cardiac output. This makes the heart more efficient so it is able to cope better with stresses of life. This can reduce the risks of CHD. It may also lead to a reduced resting blood pressure which will also reduce the risk of cardiovascular diseases.
- Respiratory system – It will maintain the strength of the respiratory muscles meaning that the older adult can breathe efficiently especially in situations where they have to work a little harder.
- Energy system – The energy systems remain efficient at producing energy. This means the older adult can perform activities at varying intensities more efficiently if they engage in regular exercise.

(iii) Goal setting:

- To maintain motivation in older adults goals need to be set as individual goals, short/medium/long-term in nature and need a degree of flexibility. This can be due to different health status, changes in health as they exercise, and to inspire them to continue. They may need to have interim targets/rewards as they go.
- Goals need to be S.M.A.R.T.
- Specific – Tailored to the needs of older adults depending on their lifestyles, e.g. If they do no exercise at all they will need a gentle start, whereas if they already exercise the exercise programme should develop from this point. It will also need to take into account any illnesses or health issues that the older adult may have.
- Measurable – An older adult may not like to engage in rigid fitness testing so a gentler approach to measurement needs to happen. e.g. Can they run further? Lift a heavier weight?
- Achievable – Targets must be applicable to an older adult. If they are not achievable the older adult may lose motivation and just stop. However, if it is achievable it can motivate them to try harder.

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- Realistic – The activities and targets have to be set within the capabilities of the older adult. If not, it can be demotivating and may cause them not to try as hard and even stop altogether.
- Time-bound – Everyone likes a challenge to be time bound. This gives the older adult a target to aim for. The targets can be short, medium and long-term. This gives them motivation along the way.

Award [1] mark for key phrase and up to [2] marks for the explanation and up to [3] marks for full explanation.
All other valid points will be given credit.
(3 × [3])
(AO2) [9]

(c) (i) Answers may address some of the following points:

- A Physical Activity Readiness Questionaire (PAR-Q) is a good way for a Fitness Instructor to obtain information regarding the medical conditions of their clients. A PAR-Q will outline an individual's medical history and highlight any major factors that could stop them from participating. If a client answers 'Yes' to one or more questions, they should be instructed to talk to their doctor before beginning an exercise programme or taking part in fitness tests.
- Fitness Instructors would use a PAR-Q to determine the safety or possible risk of exercising for an individual based upon their answers to specific health history questions.
- The Fitness Instructor needs to know the health of the individual so that they can plan a programme that is suitable to their age, health status and current activity level. They do not want to plan a programme that could endanger the client.
- The PAR-Q will help the Fitness Instructor identify the small number of adults for whom physical activity may be inappropriate or those who should have medical advice concerning the type of activity most suitable for them. The Fitness Instructor will then advise them to see a doctor before starting a programme.

Award [1] mark for key phrase and up to [2] marks for full description.
All other valid points will be given credit.
(1 × [3])
AO2 [3]

(ii) Answers may address some of the following points:

- GP Referral Schemes, also known as exercise-on-prescription, with the aim of promoting a healthier lifestyle for individuals with certain medical conditions. With the increasing numbers of patients suffering from chronic illnesses in the UK, the benefits of exercise in disease prevention and rehabilitation has become more prevalent.
- The GP Referral Scheme lasts for 12 weeks and is supervised by qualified staff, working in conjunction with the medical staff. The clients will be given a safe and effective training programme which is the start to a more active, healthier lifestyle.
- The GP Referral Scheme uses exercise to assist post-operative recovery, improvement in mobility, tackles insomnia, reduction/relief of back pain and aids weight loss, as well as improving fitness and self-esteem.

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- Research has shown that regular exercise, using the GP Referral Scheme as a starting point for clients, can improve a broad range of physical and psychological medical conditions including, diabetes, obesity, angina, asthma, arthritis, hypertension, anxiety, depression.

Award [1] mark for key phrase and up to [2] marks for full explanation. All other valid points will be given credit.
(1 × [3])
(AO2) [3]

(d) Answers may address some of the following points:

(i) Impact on society of an unhealthy workforce:

- Increase burden on society due to poor health. Long-term conditions such as diabetes, cardiovascular and respiratory disease lead to greater dependency on home, residential and nursing care in the communities.
- Greater strain on the National Health Services, ineffective service offered due to the NHS being overstretched. This will lead to a growing health care budget.
- Reliance on state benefits, rising costs, where money could be spent in other areas, and 3000 people could move from Statutory Sick Pay onto Incapacity Benefit. This cost is met through taxation on society. Therefore, if it continues to grow, it could lead to higher taxes for everyone.
- Research shows that every year in the UK 200 million days are lost through sickness absence – an average of 8.5 days lost per annum – at an estimated cost of £13 billion, according to the CBI and each week one million people (almost 4% of the workforce averaged out over a year) take time off work due to illness.

(ii) Benefits to the organisation if employees engage in physical activity:

- Healthy workforce is beneficial to employers, by creating a positive, safe and healthy environment for employees, this will increase staff morale, improve the employees' work-life balance, also having a positive impact on the business.
- Less absenteeism, healthy workers are more motivated to stay in work, recover quicker and are at less risk of long-term illness. Organisations stand to make substantial cost savings by promoting health in the workplace and reducing sickness absence. This will reduce sick pay costs, insurance costs and pressure on employees covering for those who are absent.
- A healthier, happier workforce leads to increased productivity, as staff are fully engaged and staff morale is high. Having healthy, stress-free and well-motivated employees could result in higher performance levels.
- Improved retention, positive, healthy work environments can reduce employee turnover and recruitment costs.
- Greater employee resilience. Healthier employees are, in general, more resilient and better able to cope with the changes, uncertainty and ambiguity which are now more common in modern organisations.
- Higher employee commitment. Healthy employees are more committed to the organisation.

(iii) Initiatives employers could use to encourage participation in sport:

- Employers should adopt a holistic approach to health and well-being in order to meet the needs of the workforce. This includes being proactive rather than reactive to the health issues faced by the employees. Employers should be focused on the prevention of injuries and illnesses. If an employee has been absent from work, employers should effectively manage an employee's return to work after a period of absence.
- Employers could encourage employees to cycle to work and provide changing facilities for the employees and safe areas to park bikes. This would improve fitness levels. Encouragement to join a cycling club.
- Involve employees in organising a workplace activity programme to encourage them to be more active both in and outside working hours.
- Consider negotiating discounted membership of a local gym for employees and supporting activity or sports programmes in and outside the workplace.
- Provide information on the benefits of physical activity. Encourage employees to look at ways exercise could be incorporated into their daily routines.

Award [1] mark for key phrase and up to [2] marks for discussion and [3] marks for full discussion.
All other valid points will be given credit.
(3 × [3])
(AO1, AO3) [9]

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4 (a) Answers may address some of the following points:

- Technology dominates at home and work, the two places where people spend most of their time sitting for long periods, watching television, using the computer, mobile phones, tablets, playing games.
- Advances in technology have enabled many people to do jobs and activities from the palm of their hand or behind a desk. People are not moving as much as they used to. In modern society daily life has systematically and successfully been made less physically active. New technology has made it possible to avoid physical effort.
- Jobs are less physically demanding, with the growth of communications, and with the increased automatisation and computerisation, manual labour has decreased dramatically.
- Infrastructure and town planning work against physical activity. The design of schools, public buildings and urban spaces prioritises convenience and speed ahead of walking or cycling.
- The design of buildings has had an impact as people are expected to choose the alternative that is less physically demanding. For example, in public buildings it can be difficult to find the stairs and the centrally located elevators and escalator usually appear to be the obvious way of moving between floors.
- Increased urbanisation has resulted in several environmental factors which may discourage participation in physical activity – violence, high density traffic, low air quality, pollution, lack of parks, paths and sports/recreation facilities.
- Many children are involved in organised sports but research has shown that there are fewer children involved in spontaneous sport/games.
- Safety concerns/risks involved with sport, less outside play and discouragement to participate in certain sports or physical activity is evident in society today.
- Use of transport, over-reliance on cars and other motorised transport is evident in today's society. Fewer people are choosing to walk or cycle.
- People have more alternatives in their leisure pursuits and many are choosing passive leisure activities.

Award [1] mark for brief outline and up to [2] marks for the reasons examined.
(3 × [3])
All other valid points will be given credit.
(AO1, AO3) [9]

(b) The quality of written communication is assessed in this question.

Answers may address some of the following points:

- Socio-cultural barriers refer to specific social and cultural practices, beliefs and traditions within a community or society and how these impact on self-perceptions and the perceptions of others.
- Many people do not have equal access to sport, often as a result of discrimination due to cultural variables.
- Cultural factors may provide a barrier to the potential opportunity of a number of groups in society due to gender, class, race, age and ability.
- In relation to provision this can cause a barrier for some people in society. For example, some people living in a poorer or inner-city area may find it difficult accessing suitable sports facilities to use. Many people living in rural areas where transport is required in order to travel to the various institutions, many of which are dispersed throughout the geographical region, may prove to be a hindrance in terms of provision.

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- Some activities may require equipment, which can be expensive and an inability to afford such equipment can directly restrict access through a lack of provision.
- The Department of Culture and Leisure (DECAL) in their draft sports strategy for Northern Ireland identified a number of groups with below average rates of participation in sports and physical activity. The groups identified were: women, people with disabilities, people from areas of social disadvantage, older people, black and minority ethnic groups and members of the Lesbian, Gay, Bisexual and Transgender (LGBT) community.
- Sport and physical activity can be dominated by views of the exclusive notion of elitism and masculinity. Issues such as cost, safety, access, time pressures and health issues are significant when looking at socio-cultural barriers to participation.
- For many Muslim women aspects of their faith, rules on mixed gender sports and dress code requirements, have either prevented or given the impression of preventing participation. Service providers might hold negative attitudes relating to the specific cultural and religious needs of Muslim women. The example of Muslim women suggests that cultural barriers may result in two types of barrier, those directly affecting a particular grouping and their self-perceptions and those which might cause others to develop stereotypes regarding a specific group.
- For some women one of the biggest barriers associated with levels of activity is the perception that physical activity is unfeminine. This is apparent in the gender imbalance evident across the higher levels of the sporting industry, the media portrayal of sporting activity and the formative experiences of many women.
- Women may also find it necessary to compete with traditional cultural stereotypes, that of the 'homemaker' and 'caregiver' for example, which, where prevalent, could place conceptual limits upon a woman's self-perception and the perception of others, as well as practical limits upon a woman's free time.
- People with disabilities – Activity amongst people with disabilities might be limited by socio-cultural stereotypes. Research suggests, for example, that the result of segregating disability sports from the mainstream has been twofold. On the one hand the narrow range of disability sports visible in the media has served to marginalise it. At the same time, restricting coverage to 'serious or more competitive' sport tends to give the impression that disability sport 'is a realm accessible only to the gifted' or elite.
- People from areas of social disadvantage – Research examining how socio-cultural barriers influence activity amongst those from socially-disadvantaged communities is lacking. This might be due to the complex relationship between socio-economic position levels of physical activity. Research shows that a social grouping discriminated against today is a 'hidden' minority living below the poverty line. This could include those on benefits or those on a minimum wage.
- Older people – Current research has shown that as is the case with other groups the lack of realistic role models within the community and media was a deterrent to activity. Self-perception was also a factor.
- People from the LGBT community – A study jointly commissioned by UK Sports Councils noted not only existence of prejudice, homophobia and discrimination in sport but a lack of information (and often the desire) to address them. The source of prejudice around LGBT issues in sport was traced to 'the application of gender stereotypes and gender perceptions of masculinity and femininity'.
- Religious and cultural differences may be a barrier to participation. For example, traditional views of the roles of women as the primary child

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carer and family commitments may prevent participation in sport. Religious differences such as the requirement of the Muslim faith for women to be covered at all times and avoid free mixing with men when they are not married may prevent participation in mixed sessions. Lack of disposable income to spend on sport may also be a barrier for some ethnic minority groups.

- Teenagers – This group may lack the motivation to engage in sports activities on a regular basis. This age group frequently prioritises other choices for use of their leisure time, e.g. music and entertainment. There may be a perceptual barrier especially where their peers are not involved in sport. Lack of time may constitute a barrier where older teenagers are studying and working part-time.
- Young children – Lack of suitable sessions may be a barrier for this group. Young children are also very dependent on parental supervision and transport to access sports activity sessions. Children are heavily influenced by their peers who may exert pressure either not to participate or participate in a limited range of activities. Gender stereotyping may constitute a further barrier where traditional views may prevent participation, e.g. football and rugby for boys/dancing for girls.
- When considering socio-cultural barriers to participation it is important to note that life experiences between each group may be very different. Specific groups should not be considered as unified entities, they are by contrast heterogeneous groups of individuals with individual motivations and needs. It is likely a degree of overlap will exist amongst each group, further complicating the issues. It is difficult to identify a single factor which holds the same weight for all groups or even for individuals within a specific group.

All other valid points will be given credit.

Level 1 ([1]–[3])

Overall impression: Basic

- Basic knowledge and understanding of the socio-cultural barriers that can have an impact on sports participation for individuals in Northern Ireland.
- Demonstrates a basic ability to examine the socio-cultural barriers that can have an impact on sports participation for individuals in Northern Ireland.
- Quality of written communication is basic. The candidate makes a limited selection and use of an appropriate form and style of writing. The organisation of material may lack clarity and coherence. There is little use of specialist vocabulary. Presentation, spelling, punctuation and grammar may be such that intended meaning is not clear.

Level 2 ([4]–[6])

Overall impression: Good

- Good knowledge and understanding of the socio-cultural barriers that can have an impact on sports participation for individuals in Northern Ireland.
- Demonstrates a good ability to examine the socio-cultural barriers that can have an impact on sports participation for individuals in Northern Ireland.
- Quality of written communication is good. The candidate makes a reasonable selection and uses an appropriate form and style of writing.

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Relevant material is organised with some clarity and coherence. There is adequate use of specialist vocabulary. Presentation, spelling, punctuation and grammar are sufficiently competent to make meaning clear.

Level 3 ([7]–[8])

Overall impression: Excellent

- Excellent knowledge and understanding of the socio-cultural barriers that can have an impact on sports participation for individuals in Northern Ireland.
- Demonstrates an excellent ability to examine the socio-cultural barriers that can have an impact on sports participation for individuals in Northern Ireland.
- Quality of written communication is excellent. The candidate successfully selects and uses an appropriate form and style of writing. Relevant material is organised with a degree of clarity and coherence. There is extensive and accurate use of specialist vocabulary. Presentation, spelling, punctuation and grammar are of a high standard and ensure the meaning is clear.

[0] is awarded for a response not worthy of credit.
(AO1, AO3) [8] 17

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5 (a) Answers may address some of the following points:

- The context of people's lives determines their health. Individuals are unlikely to be able to directly control many of the determinants of health, the social and economic environments, the physical environment and the person's individual characteristics and behaviours.
- Income and social status – Higher income and social status are linked to better health; the greater the gap between the richest and poorest people, the greater the difference in health. Unemployment, where members of workless households are more likely to live in poverty.
- Education – Low education levels are linked with poor health, more stress and lower self-confidence.
- Physical environment – Safe water and clean air, healthy workplaces, safe houses, communities and roads all contribute to good health. Employment and working conditions, people in employment are healthier, particularly those who have more control over their working conditions.
- Social support networks – Greater support from families, friends and communities is linked to better health. Culture, customs and traditions and the beliefs of the family and community all affect health.
- Personal behaviour and coping skills – Balanced diet, keeping active, smoking, drinking and how individuals deal with life's stresses and challenges all affect health.
- Health services – Access and use of services that prevent and treat diseases influences health.

Award [1] mark for each relevant reason identified.
All other valid points will be given credit.
(4 × [1])
(AO1) [4]

(b) The quality of written communication is assessed in this question.

Answers may address some of the following points:

- For over forty years, government public health policies have increasingly focused on reducing the toll of death and disease from tobacco use. These initiatives have reduced smoking prevalence from 70% of men in 1962 (the year the Royal College of Physicians published their groundbreaking study that concluded smoking was a cause of lung cancer) to 24% in 2005. However, smoking still accounted for around a hundred thousand deaths a year, with passive smoking blamed for some eleven thousand of these deaths.
- The Public Health White Paper Healthy Lives 2010, Healthy People: Our strategy for public health in England sets out the Government's long-term vision for improving public health in England. The White Paper recognises the devastating impact that tobacco use has on public health in communities and it sets out a commitment to publish this Tobacco Control Plan in order to maximise the efforts to reduce tobacco use. Smoking is harmful not only to smokers but also to the people around them. Smoking rates have fallen considerably since the 1960s but over 8 million people in England still smoke. The decline in smoking rates in England has lost momentum in recent years.
- A smoking ban in the UK was introduced, making it illegal to smoke in all enclosed workplaces. Prior to the ban many businesses voluntarily introduced bans on smoking mainly as a result of public feedback.

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- Tobacco advertising had been banned, gradually starting with a ban on television advertising of cigarettes in 1965 to a complete ban on all tobacco advertising in 2005.
- The government have set out plans to continue to reshape social norms around tobacco use to promote health and well-being. The plan includes national ambitions to reduce smoking prevalence among adults and young people and to reduce smoking during pregnancy.
- Smoking rates are much higher in some social groups, including those with the lowest incomes. These groups suffer the highest burden of smoking-related illness and death. Smoking is the single biggest cause of inequalities in death rates between the richest and poorest in the community. Consequently, tackling tobacco use is central to realising the Government's commitment to improve the health of the poorest, fastest.
- While rates of smoking have continued to decline over the past decades, around 21 per cent of adults in England still smoke. Smoking prevalence has fallen little since 2007 and we need to take new action to drive smoking rates down further.
- The Government is setting three national ambitions to focus tobacco control work across the whole system:
  - Reduce smoking prevalence among adults in England: To reduce adult (aged 18 or over) smoking prevalence in England to 18.5% or less by the end of 2015, meaning around 210000 fewer smokers a year.
  - Reduce smoking prevalence among young people in England: To reduce rates of regular smoking among 15-year-olds in England to 12% or less by the end of 2015.
  - Reduce smoking during pregnancy in England: To reduce rates of smoking throughout pregnancy to 11% or less by the end of 2015 (measured at time of giving birth).
- The Tobacco Control Plan in England – Through this plan, the Government supports comprehensive tobacco control in England across the six internationally recognised strands, which are:
  - stopping the promotion of tobacco;
  - making tobacco less affordable;
  - effective regulation of tobacco products;
  - helping tobacco users to quit;
  - reducing exposure to second-hand smoke; and
  - effective communications for tobacco control.
- Directors of Public Health will be the strategic leaders for public health and health inequalities in local communities, working in partnership with the local NHS and across the public, private and voluntary sectors.
- The NHS will continue to play a key role in health improvement. Public health will be part of the NHS Commissioning board's mandate. There will be stronger incentives for GPs to play an active role in improving public health.

All other valid points will be given credit.

Level 1 ([1]–[4])

Overall impression: Basic

- Basic knowledge and understanding of the extent to which the Government initiatives on smoking have affected the health of the nation in the UK.
- Demonstrates a basic ability to discuss the extent to which the Government initiatives on smoking have affected the health of the nation in the UK.

- Quality of written communication is basic. The candidate makes a limited selection and use of an appropriate form and style of writing. The organisation of material may lack clarity and coherence. There is little use of specialist vocabulary. Presentation, spelling, punctuation and grammar may be such that intended meaning is not clear.

Level 2 ([5]–[7])

Overall impression: Good

- Good knowledge and understanding of the extent to which the Government initiatives on smoking have affected the health of the nation in the UK.
- Demonstrates a good ability to discuss the extent to which the Government initiatives on smoking have affected the health of the nation in the UK.
- Quality of written communication is good. The candidate makes a reasonable selection and use of an appropriate form and style of writing. Relevant material is organised with some clarity and coherence. There is adequate use of specialist vocabulary. Presentation, spelling, punctuation and grammar are sufficiently competent to make meaning clear.

Level 3 ([8]–[10])

Overall impression: Excellent

- Excellent knowledge and understanding of the extent to which the Government initiatives on smoking have affected the health of the nation in the UK.
- Demonstrates an excellent ability to discuss the extent to which the Government initiatives on smoking have affected the health of the nation in the UK.
- Quality of written communication is excellent. The candidate successfully selects and uses an appropriate form and style of writing. Relevant material is organised with a degree of clarity and coherence. There is extensive and accurate use of specialist vocabulary. Presentation, spelling, punctuation and grammar are of a high standard and ensure the meaning is clear.

[0] is awarded for a response not worthy of credit.
(AO1, AO3) [10]

AVAILABLE MARKS
14
100

Total