The EverLearner

Mark Scheme

OCR A-Level PE - Skill Exercise Physiology

This mark scheme contains:

- Copy of each question for reference
- Marking guidance where appropriate
- Marking points containing alternative acceptable responses plus relevant assessment objective

How should schools use this mark scheme?

The mark scheme has been constructed specifically for the exam paper used in preparation for and during the live revision shows provided by James Simms in May 2022.

All questions/mark schemes are taken from ExamSimulator. Please note, there are hundreds of additional questions on ExamSimulator covering the AEI topics. Within the platform, the teacher is assisted with the marking and full diagnostic feedback is also provided. ExamSimulator is a premium resource available via TheEverLearner.com.

I hope this helps both students and teachers in their exam preparations.

James Simms

1. Identify the type of athlete that might be tempted to blood dope.

Marking guidance

Not provided

Marking points

(1) [AO 2] Endurance athlete

(2) [AO 2] Road cyclist/Marathon runner/Triathlete

2. Explain how blood doping is carried out.

Marking guidance

Not provided

Marking points

(1) [AO 2] Blood is removed from the athlete/Blood taken from the athlete

(2) [AO 2] Approximately four weeks prior to competition/One month before competition/Four weeks in advance

(3) [AO 2] Red blood cells are stored in deep freeze/Red cells stored/Red cells frozen

(4) [AO 2] Shortly before the event, red blood cells are transfused into the athlete/Mixed with saline solution and transfused/Transfused back into the athlete

3. Identify one advantage **and** one disadvantage of blood doping.

Marking guidance

Sub max one mark for an advantage and sub max one mark for a disadvantage.

Marking points

(1) [AO 3] Advantage of blood doping is it increases haematocrit/More red blood cells/More haemoglobin

(2) [AO 3] Advantage of blood doping is an increase in the oxygen-carrying capacity of the blood/Greater potential for oxyhaemoglobin/More oxygen delivered to working muscles

(3) [AO 3] Advantage is the athlete can work at higher intensities aerobically/OBLA delayed to a higher intensity of exercise

(4) [AO 3] Disadvantage is that blood doping is illegal/Banned in cycling/Considered to be cheating

(5) [AO 3] Disadvantage is receiving a suspension if caught/Two-year ban/Prevented from competing

(6) [AO 3] Disadvantage is that the blood becomes very viscous/Increased blood pressure/Blood becomes thicker

(7) [AO 3] Disadvantage is the risk of infections from transfusion/Transfusion is an invasive technique/Risk of hepatitis

4. Endurance athletes might use IHT as an ergogenic aid.
Describe IHT.

Marking guidance

Do not accept "oxygen tent" instead of hypoxic chamber. "Oxygen tent" refers to hyperoxic conditions and it is typically used for rehabilitation.

Marking points

(1) [AO 1] Intermittent hypoxic training

(2) [AO 1] Either wearing a hypoxic mask or using a hypoxic chamber/Hypoxic mask/Hypoxic chamber

(3) [AO 1] Training with less oxygen in the air/Lower partial pressure of oxygen

(4) [AO 1] Form of HIIT/High Intensity Interval Training/HIIT

5. Identify one advantage **and** one disadvantage of IHT.

Marking guidance

Sub max one mark for an advantage and sub max one mark for a disadvantage.

Marking points

(1) [AO 3] Advantage of IHT is it causes erythropoiesis/Increase in number of red blood cells/Increases haematocrit

(2) [AO 3] Advantage of IHT is there is an increase in the oxygen-carrying capacity of the blood/Greater potential for oxyhaemoglobin/More oxygen delivered to the working muscles

(3) [AO 3] Advantage is the athlete can work at higher intensities aerobically/OBLA delayed to a higher intensity of exercise

(4) [AO 3] Advantage of IHT is it is cheaper than altitude/More practical than altitude/Does not involve travel

(5) [AO 3] Disadvantage is wearing a mask or using a chamber can limit the type of training that can be done/Mask is not convenient/Chamber is not convenient

6. Identify the main type of strength used by an Olympic weightlifter and describe **one** weight training session an Olympic weighlifter would take part in.

Marking guidance

Sub max four marks for AO2 points. The fifth mark must come from identifying maximal strength (AO1).

Marking points

(1) [AO 1] Maximum strength/Maximal strength

(2) [AO 2] Free weights/Multi-gym/Resistance machines

(3) [AO 2] 85%-100% one rep max

(4) [AO 2] Between 1 and 5 reps/1-5 reps/5 reps

(5) [AO 2] Between 2 and 6 sets/2-6 sets/2 - 6 sets

(6) [AO 2] Between 3 and 5 minutes recovery between sets/3-5 minutes recovery/5 minutes recovery

(7) [AO 2] Work relief ratio of 1:3+/Work relief ratio 1:3/1:3+

7. Explain why circuit training is often used by sports teams to develop strength endurance.

Marking guidance

Not provided

Marking points

(1) [AO 2] Stations can be longer to improve strength endurance/One-minute stations/Greater than one minute stations

(2) [AO 2] Practical method for large groups/Whole teams can take part simultaneously

(3) [AO 2] Very flexible and can be structured for different roles in a team/Highly adaptable training method

(4) [AO 2] Can be done in different types of spaces/Indoors or outdoors

(5) [AO 2] Requires limited equipment/Practical/Inexpensive

(6) [AO 2] Can incorporate skills as well as fitness/Inclusion of skill stations

8. Explain how a trainer uses PNF training with their athletes as a means of increasing flexibility.

Marking guidance

Not provided

Marking points

(1) [AO 2] PNF inhibits the stretch reflex/Desensitises the stretch reflex/Reduces the stretch reflex

(2) [AO 2] Muscle spindles are inhibited

(3) [AO 2] Partner assists the stretch/Partner-assisted/Partner

(4) [AO 2] Complete a static passive stretch/Hold a static passive stretch/Static passive stretch

(5) [AO 2] Followed by an isometric contraction of agonist/Isometric contraction of the agonist/Isometric contraction

(6) [AO 2] Relax the agonist for a few moments and repeat the stretch/Relax the agonist and repeat the stretch/Repeat the stretch

(7) [AO 2] Stretch the agonist through a greater RoM/Stretch the agonist further/Increased intensity of the stretch

9. Evaluate PNF stretching as a method of improving flexibility.

Marking guidance

Not provided

Marking points

(1) [AO 3] Advantage is it is highly effective/Faster gains than other stretching methods/Effective at increasing flexibility

(2) [AO 2] Advantage is it can be applied to almost all joints and movements/Versatile methodology/All joints can use PNF

(3) [AO 3] Advantage is that it can be used during a cool-down to increase flexibility/During the cool-down/When cooling down

(4) [AO 3] Disadvantage is the method is more complex than other stretches/Not as simple as other stretches/More complicated

(5) [AO 3] Disadvantage is that it takes longer than other methods/Time consuming/Takes too much time

(6) [AO 3] Disadvantage is that it is thought to decrease speed/Might decrease power/Might decrease speed

10. Evaluate the use of **heat therapy** as an injury rehabilitation technique.

Marking guidance

Sub max of **two** marks for the benefits of hot therapy and a sub max of **two** marks for risks associated.

Marking points

(1) [AO 3] A benefit of hot therapy is vasodilation of blood vessels increasing blood flow/Vasodilation increasing blood flow/Increases blood flow to the site of an injury

(2) [AO 3] Decreases muscle tension/Reduces muscle stiffness/Reduces number of fibres partially contracted

(3) [AO 3] Decreases pain from the injury/Reduces nervous activity lowering pain/Reduces pain experienced

(4) [AO 3] A risk of heat therapy is increased swelling after an acute injury/Can exacerbate swelling after an acute injury/Increase severity of acute symptoms

(5) [AO 3] Increases pain after acute injury/Greater pain experienced immediately/More instant pain after injury

11. Explain why non-steroid anti-inflammatory drugs (NSAIDs) are often used following an acute injury.

Marking guidance

To access marks, students **must** state **why** they are effective and not how or when they are used.

Marking points

(1) [AO 1] Inhibit the chemical response after injury has occurred/Prevent chemical release following an injury/Prevent release of histamine causing vessels to leak fluid into tissues

(2) [AO 1] Inhibit the inflammatory response from the body/Reduce inflammation at the injured site/Reduce swelling that occurs

(3) [AO 1] Interfere with pain signals/Interfere with pain receptors/Signals sent from pain receptors are inhibited

(4) [AO 1] Reduce body temperature/Prevent over heating at the site of the injury/Reduce temperature at the injury site