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Sports, exercise and health science

Standard level

Paper 1A

28 April 2026

Zone A afternoon | **Zone B** afternoon | **Zone C** afternoon

1 hour 30 minutes [Paper 1A and Paper 1B]

Instructions to students

- Do not open this examination paper until instructed to do so.
- Answer all the questions.
- For each question, choose the answer you consider to be the best and indicate your choice on the answer sheet provided.
- A calculator is required for this paper.
- A clean copy of the **SEHS data booklet** is required for this paper.
- The maximum mark for paper 1A is **[30 marks]**.
- The maximum mark for paper 1A and paper 1B is **[55 marks]**.

1. A change in blood pH from 7.4 to 7.3 is detected by chemoreceptors. Which are the locations of these receptors?

- I. Neck
- II. Aorta
- III. Inner ear

- A. I and II only
- B. I and III only
- C. II and III only
- D. I, II and III

2. Which correctly characterizes the effects of testosterone?

	Bone mineral density	Protein synthesis	Erythropoietin production
A.	Increases	Decreases	Decreases
B.	Increases	Increases	Increases
C.	Decreases	Decreases	Decreases
D.	Decreases	Increases	Increases

3. Which correctly characterizes the effects of a regular aerobic exercise programme on maintaining blood glucose levels?

	Volume of insulin released	Glucose uptake into muscles	Plasma glucose concentration
A.	Less	Increases	Lowering slower
B.	More	Decreases	Lowering slower
C.	Less	Increases	Lowering faster
D.	More	Decreases	Lowering faster

4. Cardiac output (Q) is the volume of blood ejected from the left ventricle per minute, and it is distributed around the body using the circulatory system. What is the distribution of cardiac output during aerobic exercise compared to rest?

	Active muscles	Liver	Skin
A.	Increases	Equal	Decreases
B.	Equal	Decreases	Increases
C.	Equal	Equal	Decreases
D.	Increases	Decreases	Increases

5. Which is the maximum amount of air an individual can expel from their lungs after a maximum inhalation?
- A. Tidal volume
- B. Reserve volume
- C. Vital capacity
- D. Minute ventilation
6. Which explains the role of the hypothalamus in regulating water balance?
- A. High electrolyte levels signal the hypothalamus to decrease thirst and increase water retention.
- B. High electrolyte levels signal the hypothalamus to increase antidiuretic hormone (ADH) release and increase water retention.
- C. Low electrolyte levels signal the hypothalamus to increase thirst and increase water excretion.
- D. Low electrolyte levels signal the hypothalamus to increase antidiuretic hormone (ADH) release and increase water excretion.

7. Which apply to carbohydrates?

- I. They are found in sugars, starches and cellulose.
 - II. When broken down they yield carbon dioxide and water.
 - III. They contain carbon, hydrogen, oxygen and nitrogen.
- A. I and II only
 - B. I and III only
 - C. II and III only
 - D. I, II and III

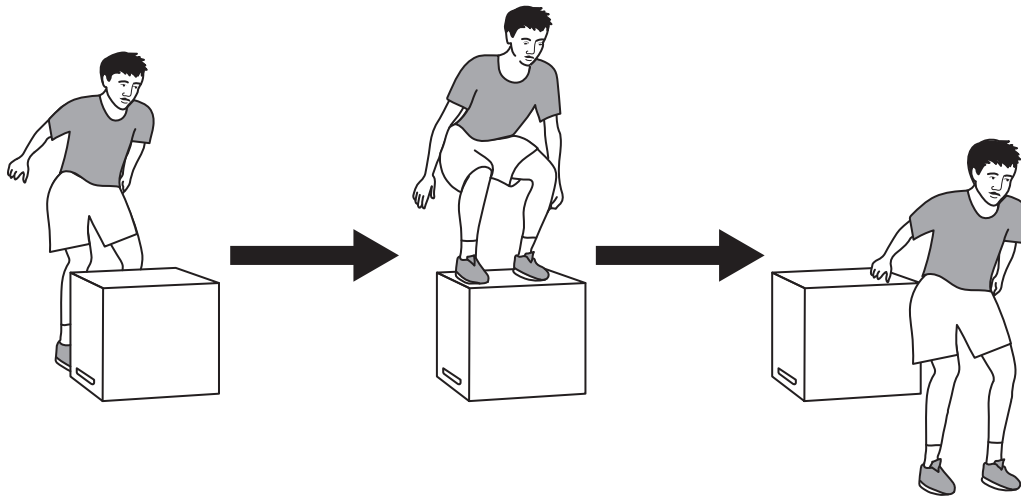
8. What are the contributions of the following energy systems during a 5 km run?

	Phosphagen system	Glycolytic system	Aerobic system
A.	Predominant	Moderate	Least
B.	Least	Moderate	Predominant
C.	Least	Predominant	Moderate
D.	Moderate	Least	Predominant

9. The running performance of two females was assessed during an aerobic capacity test. Both females had the same VO_2max (L min^{-1}) values. The data was converted relative to body size to provide a meaningful comparison between the individuals. Which is correct for a trained 60 kg female when compared to an untrained 70 kg female?

	Relative VO_2max ($\text{ml kg}^{-1} \text{min}^{-1}$)	Run to exhaustion time (min)
A.	Higher	Equal
B.	Equal	Longer
C.	Equal	Equal
D.	Higher	Longer

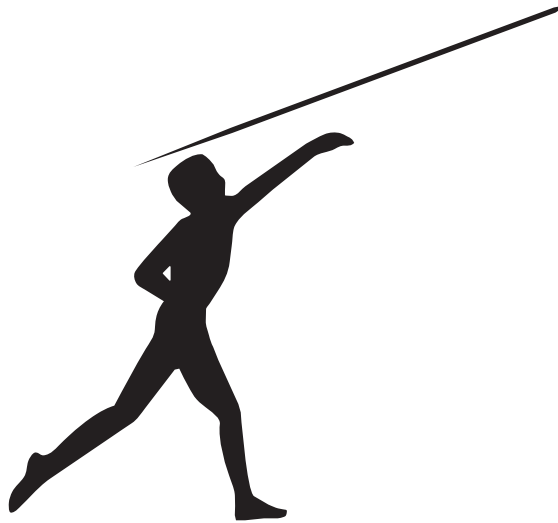
10. Which is an aim of post-season training for a road cyclist?
- A. Increased cardiovascular endurance
 - B. Recovery from the season
 - C. Develop muscular endurance
 - D. Focus on technical aspects of cycling
11. Which is a risk factor for osteoporosis?
- A. Early menopause caused by excessive exercise
 - B. A high body mass index (BMI) due to muscle hypertrophy
 - C. High dietary calcium intake during youth
 - D. An increase in weight-bearing exercise
12. Which plane do the knees move through during this movement?



- A. Frontal
- B. Transverse
- C. Sagittal
- D. Longitudinal

- 13.** Which is a sheath of fibrous tissue enclosing organs?
- A. Muscle
 - B. Tendon
 - C. Ligament
 - D. Fascia
- 14.** Which describes motor unit recruitment?
- I. Smaller motor units are recruited first.
 - II. Recruiting more motor units increases force production.
 - III. Recruitment of motor units increases in the order: type IIx → type IIa → type I.
- A. I and II only
 - B. I and III only
 - C. II and III only
 - D. I, II and III
- 15.** A runner runs at a velocity of 10 km hr^{-1} . Over the next two hours, they accelerate by 1 km hr^{-2} . What is the runner's velocity after the two hours?
- A. 10 km hr^{-1}
 - B. 11 km hr^{-1}
 - C. 12 km hr^{-1}
 - D. 13 km hr^{-1}
- 16.** Which will increase the acceleration of a ball struck by a racket?
- A. Decreasing the force applied to the ball
 - B. Increasing the angular velocity of the racket
 - C. Increasing the mass of the ball
 - D. Lowering the centre of mass of the ball

17. Which correctly identifies the factors affecting the horizontal distance of the flight path of a javelin **after** release?



	Initial velocity	Air resistance	Projection angle	Gravity
A.	No	No	No	Yes
B.	Yes	Yes	Yes	No
C.	No	Yes	No	Yes
D.	Yes	No	Yes	No

18. Which represents the recovery phase of movement in a running action?
- A. Extension of the hip and knee, the leg in contact with the ground
 - B. Flexion of the hip and knee, the leg in contact with the ground
 - C. Extension of the hip and knee, the leg not in contact with the ground
 - D. Flexion of the hip and knee, the leg not in contact with the ground

- 19.** Which strategies could be used to decrease injury in young athletes?
- I. Adaptation of rules to meet developmental stages
 - II. Use of different sizes and materials for equipment
 - III. Incorporation of flexibility training into warmups
- A. I and II only
 - B. I and III only
 - C. II and III only
 - D. I, II and III
- 20.** Which is true about concussion recovery?
- A. Complete bed rest allows the brain to heal itself without expending extra energy.
 - B. Implementing cognitive games aids recovery by increasing brain blood flow.
 - C. Total recovery time for athletes injured in the same sport is consistent.
 - D. Return to competitive play is decided by the athlete based on their desire to play.
- 21.** Which describes an athlete's ability to perform consistently under pressure to compete optimally?
- A. Mental toughness
 - B. Personality traits
 - C. Attentional focus
 - D. Controlled distraction
- 22.** Which is an environmental constraint while learning volleyball skills?
- A. Reducing the length of the court
 - B. Using smaller groups
 - C. Training while parents are watching
 - D. Arranging the players according to height

- 23.** Which type of transfer is demonstrated by a soccer player who naturally kicks with their left foot and then learns to kick with their right foot?
- A. Bilateral
 - B. Practice to performance
 - C. Skill to skill
 - D. Stage to stage
- 24.** Which is an example of attentional narrowing in an athlete?
- A. The athlete ignores irrelevant cues due to decreased arousal.
 - B. The athlete ignores irrelevant cues due to increased arousal.
 - C. The athlete uses internal distractors to decrease arousal.
 - D. The athlete uses external distractors to increase arousal.
- 25.** Which are the basic psychological needs of self-determination theory?
- A. Competence, autonomy and relatedness
 - B. Achievement, competence and relatedness
 - C. Autonomy, independence and relatedness
 - D. Self-actualization, affiliation and achievement
- 26.** Which is a characteristic of an ego motivational climate?
- A. It places a strong emphasis on cooperation.
 - B. It is usually only effective in the long term.
 - C. It places a strong emphasis on team development.
 - D. It is usually only effective in the short term.

- 27.** An athlete's performance decreases dramatically and rapidly. Which is the most likely cause?
- A. Somatic anxiety is high and cognitive anxiety is low.
 - B. Somatic anxiety is low and cognitive anxiety is high.
 - C. Both somatic and cognitive anxiety are low.
 - D. Both somatic and cognitive anxiety are high.
- 28.** Which is a coping strategy to control emotions through helpful words and phrases?
- A. Arousal
 - B. Relaxation
 - C. Self-talk
 - D. Motivation
- 29.** An athlete aims to place in the top three in a competition. Which is their type of goal?
- A. Learning
 - B. Outcome
 - C. Performance
 - D. Process
- 30.** Which is an effective control within an experimental design for the practice effect (familiarization)?
- A. Short rest periods between trials
 - B. All trials are recorded for data collection
 - C. Use of the same equipment for all trials
 - D. Unlimited unrecorded trials prior to data collection
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