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Sports, exercise and health science

Higher level

Paper 1A

28 April 2026

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

1 hour 45 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 **[40 marks]**.
- The maximum mark for paper 1A and paper 1B is **[65 marks]**.

1. Which describes a cyclist's cardiovascular response during the beginning of a race?

	Nerve stimulation	Cardiovascular response
A.	Parasympathetic	Increased heart rate
B.	Sympathetic	Decreased cardiac output
C.	Parasympathetic	Decreased blood pressure
D.	Sympathetic	Increased blood supply to heart

2. Which hormone regulates fluid and electrolyte balance?

- A. Testosterone
- B. Glucagon
- C. Antidiuretic (ADH)
- D. Epinephrine

3. During exercise, some heat energy is transferred directly from skeletal muscle to the skin. What type of heat transfer is occurring?

- A. Conduction
- B. Radiation
- C. Convection
- D. Evaporation

4. A runner competes in an 800 m track event. Which response indicates an increase in carbon dioxide production during the race?

	Blood pH	Feedback mechanism
A.	Increases	Negative
B.	Decreases	Positive
C.	Increases	Positive
D.	Decreases	Negative

5. What is a long-term adaptation to a hot environment?
- A. Reduced blood volume
 - B. High electrolyte sweat concentration
 - C. Early-onset sweat response
 - D. Increased oxygen uptake
6. What cardiovascular changes occur during the beginning of a long-distance running race?
- A. Increased ventricular volume and increased blood viscosity
 - B. Increased cardiac output and reduced blood viscosity
 - C. Increased heart rate and vasoconstriction to working muscles
 - D. Increased stroke volume and vasodilation to digestive organs
7. Which occurs as exercise intensity increases?
- I. Increased vital capacity
 - II. Increased rate of respiration
 - III. Increased tidal volume
- A. I and II only
 - B. I and III only
 - C. II and III only
 - D. I, II and III

8. Why would an endurance athlete require greater water intake compared to a sprinter?
- I. Higher metabolic rate
 - II. Increased sweat production
 - III. Decreased insulin secretion
- A. I and II only
 - B. I and III only
 - C. II and III only
 - D. I, II and III
9. What is the result of reduced levels of iron in the body?
- A. Decrease in ventilation rate
 - B. Increase in production of ATP by the phosphagen system
 - C. Increase in nerve signal transmission
 - D. Decrease in oxygen transport by red blood cells
10. Which is correctly classified?
- A. Lipids: synthesize hormones and provide protection
 - B. Proteins: support metabolic pathways and primary energy store
 - C. Carbohydrates: allow gaseous exchange and are a primary structural component
 - D. Water: catalyses reactions and is a fuel source
11. An athlete sprints 40 m in 5.4 s. What is the dominant energy system?
- A. Oxidative
 - B. Anaerobic glycolysis
 - C. Phosphagen
 - D. Aerobic glycolysis

- 12.** A trained swimmer and an untrained swimmer compete in the same race. What is the difference in EPOC between the swimmers?
- A. The untrained swimmer's oxygen debt is lower.
 - B. The trained swimmer restores phosphocreatine (PCr) faster.
 - C. The untrained swimmer removes lactate faster.
 - D. The trained swimmer returns to their resting heart rate slower.
- 13.** Which are indicators of overtraining?
- I. Increased susceptibility to infections
 - II. Temporary muscle soreness
 - III. Sudden, unexplained decrease in performance
- A. I and II only
 - B. I and III only
 - C. II and III only
 - D. I, II and III
- 14.** Which benefit of exercise reduces the risk of type 2 diabetes?
- A. Increased muscle mass for glucose storage
 - B. Decreased sensitivity of cells to insulin
 - C. Reduced glucose tolerance
 - D. Increased blood glucose levels
- 15.** Which activity is recommended for an older adult beginning an exercise programme?
- A. Walking to decrease metabolic rate
 - B. Weight training to increase flexibility
 - C. Using a hand ergometer to improve VO_2max
 - D. Static stretching to increase bone density

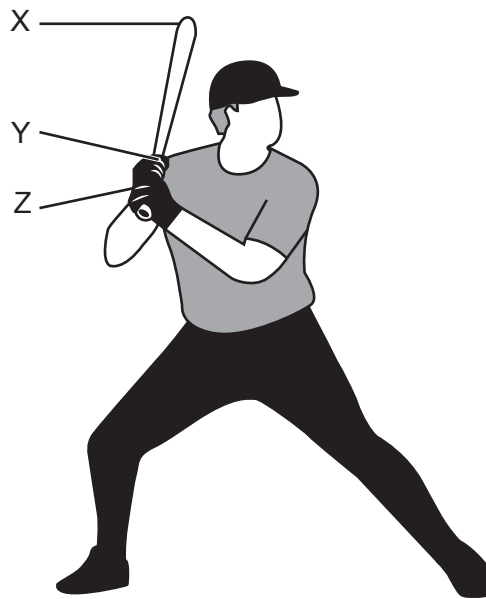
16. An athlete competes in a road cycling race. Which aids recovery after the race?

- I. Replenishing hydration levels
 - II. Restoring muscle glycogen levels
 - III. Reducing polyphenol-rich foods
- A. I and II only
- B. I and III only
- C. II and III only
- D. I, II and III

17. Which bone is correctly categorized?

	Bone	Axial or appendicular	Function
A.	Coccyx	Appendicular	Supports posture
B.	Scapula	Appendicular	Attachment for latissimus dorsi
C.	Vertebrae	Axial	Movement of torso
D.	Clavicle	Axial	Stability of shoulder joint

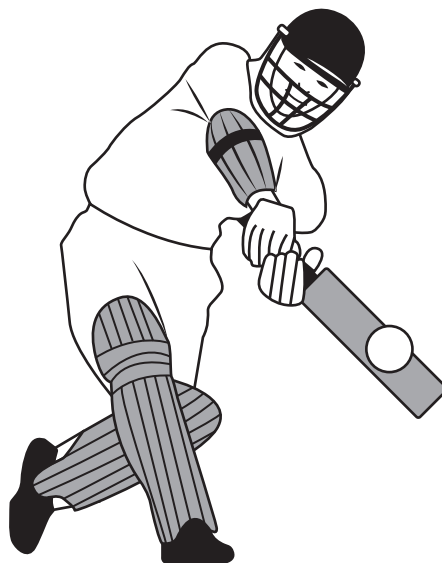
18. The diagram shows a baseball player preparing to swing a bat. Which identifies the class of lever, effort and fulcrum?



	Class	Effort	Fulcrum
A.	Third	Y	Z
B.	Second	X	Z
C.	Second	Z	Y
D.	Third	X	Y

19. What is the role of ATP in causing muscle contraction?
- A. Provides energy for the action potential to stimulate the muscle
 - B. Binds to the myosin head, causing detachment from actin
 - C. Stimulates the release of calcium ions from the sarcoplasmic reticulum
 - D. Binds to troponin to expose myosin binding sites

20. What is a function of cartilage?
- A. Reduces friction
 - B. Attaches bone to bone
 - C. Attaches muscle to bone
 - D. Produces synovial fluid
21. A soccer (football) player coordinates the movement of the leg through the sagittal plane to kick a ball optimally. What is demonstrated?
- A. Summing joint forces
 - B. Line of gravity
 - C. Linear motion
 - D. Angular momentum
22. The diagram shows a cricket player batting a ball. Which illustrates Newton's second law of motion when batting in cricket?



- A. The bat applies an equal and opposite force to the ball on impact.
- B. The ball exerts a force on the bat when it is hit.
- C. The force of the bat changes the mass of the ball, causing it to accelerate.
- D. The ball accelerates in proportion to the force that the bat gives it.

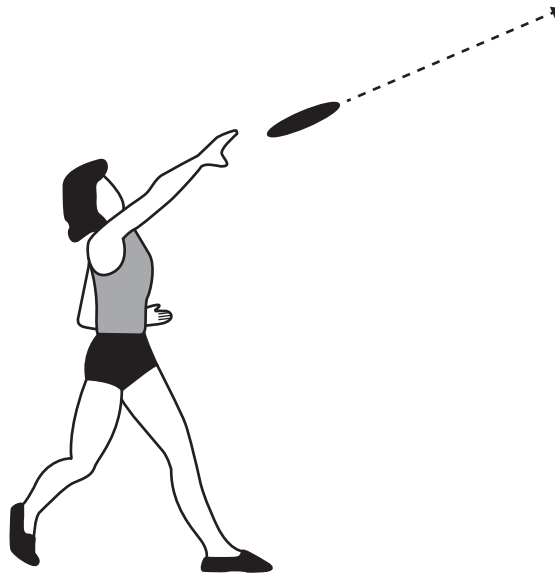
23. An athlete completes four trials of a standing long jump test. Which jump produced the greatest power output?

	Trial	Force of jump / N	Distance of jump / m	Time the force acts / s
A.	1	1000	1.8	0.7
B.	2	1200	1.8	0.5
C.	3	800	2.0	0.5
D.	4	1500	2.0	0.7

24. An athlete throws a javelin during practice. Which throw will travel the farthest distance?

	Throw	Angle of release / degrees	Height of release / m	Speed of release / ms⁻¹
A.	1	40	2.0	20
B.	2	40	2.0	30
C.	3	35	2.0	20
D.	4	35	2.0	30

25. The diagram shows the flight of a discus. Which will produce lift?



- A. Higher air pressure above and lower air velocity below the discus
 - B. Lower air pressure above and lower air velocity below the discus
 - C. Higher air pressure above and higher air velocity below the discus
 - D. Lower air pressure above and higher air velocity below the discus
26. Which is an example of a discrete skill?
- A. Cross-country skiing
 - B. Race walking
 - C. Swimming
 - D. Springboard diving
27. Which is an example of an internal risk factor?
- A. A prior knee injury
 - B. Playing on synthetic grass
 - C. Wearing a chest protector
 - D. The goalkeeper position

28. Which is an example of a chronic injury?
- A. Anterior cruciate ligament (ACL) tear
 - B. Concussion
 - C. Stress fracture
 - D. Ankle sprain
29. A basketball player enjoys talking and interacting with teammates and demonstrates self-discipline during the game. Which personality traits does this player exhibit?
- A. Openness to experience and mental toughness
 - B. Agreeableness and neuroticism
 - C. Extroversion and conscientiousness
 - D. Introversion and emotional stability
30. A wrestler faces an opponent that they previously lost to. How do they feel based on an internal locus of control?
- A. Nervous they cannot win because the opponent is better
 - B. Confident they can win because they feel lucky this time
 - C. Nervous because they have a new coach
 - D. Confident because they have increased their training effort
31. Using previous experience, a soccer (football) team makes shorter passes because of wet conditions on the field. What is this theory?
- A. Goal orientation theory
 - B. Ecological dynamics theory
 - C. Attribution theory
 - D. Signal detection theory

- 32.** Which is an example of bilateral transfer?
- A. Progressing from 3-on-3 (3×3) basketball to 5-on-5 (5×5) basketball
 - B. Throwing a cricket ball then throwing a shot put
 - C. Batting in baseball with a pitching machine
 - D. Learning to shoot a lacrosse ball with the non-dominant arm
- 33.** Which demonstrates the cognitive phase of learning a skill?
- A. A baseball player hits balls in a batting cage to maintain consistency.
 - B. A rock climber uses verbal cues to remember correct technique.
 - C. A basketball player can perform a jump shot with coordinated movements.
 - D. An archer can hit the target with accuracy.
- 34.** A field hockey player wants to score more goals but is not focused on improving technique in practice. Which orientation would describe this athlete?
- A. High ego, low task
 - B. High ego, high task
 - C. Low ego, low task
 - D. Low ego, high task
- 35.** A wheelchair rugby player focuses on trying to win trophies and gain recognition from national selectors. Which type of causal orientation does the player exhibit?
- A. Amotivation
 - B. Autonomy
 - C. Control
 - D. Task

- 36.** Which of these supports a task-oriented motivation?
- I. Provide easily accomplished tasks
 - II. Focus on positive feedback
 - III. Gradual increase in task difficulty
- A. I and II only
 - B. I and III only
 - C. II and III only
 - D. I, II and III
- 37.** A player uses self-talk during a soccer (football) game. Which of these examples of self-talk is a problem-focused coping strategy?
- A. “Take deep breaths to calm down when I get nervous.”
 - B. “When I receive a pass, I will speed up to beat the defender.”
 - C. “This is a big game, I am not sure I have practiced enough.”
 - D. “I didn’t take the shot; my legs are tired.”
- 38.** An athlete is missing shots on goal during games. Which would be the most effective coping strategy for future success?
- A. Logical analysis: opposing teams are more experienced
 - B. Disengagement: discuss frustration with a teammate
 - C. Distraction: take a few days off from practice
 - D. Social support: ask the coach for help with shot technique

- 39.** Which gives the reason that goal adjustment is considered more important than goal setting for an athlete?
- A. Develops an adaptable approach to their progress and coping with uncertainty
 - B. Encourages increased focus on fixed goals to achieve progress more quickly
 - C. Discourages flexible long-term open goals
 - D. Aids in the control of external variables affecting performance
- 40.** A softball batter uses imagery to rehearse executing a perfect hit of the ball. What is the function of this imagery?
- A. Cognitive general
 - B. Cognitive specific
 - C. Motivational general
 - D. Motivational specific
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