Diploma Programme
Programme du diplôme
Programa del Diploma

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]**.

2226 – 4919

13 pages

1. Which applies to baroreceptors within the body?

A. Monitor movement within the tendon–muscle complex to activate glucagon

B. Relay chemical changes within the blood to the respiratory system

C. Respond to vascular pressure stimuli to activate the nervous system

D. Detect changes in the internal temperature of organs to stimulate sweating

2. Which describes the roles of insulin and glucagon in regulating blood sugar concentration?

	Insulin	**Glucagon**
A.	Increases blood sugar by promoting glucose release from the liver	Decreases blood sugar by promoting glucose uptake by adipose tissue
B.	Decreases blood sugar by promoting glucose uptake by cells	Increases blood sugar by stimulating glucose release from the liver
C.	Decreases blood sugar by stimulating glucose absorption in the intestines	Decreases blood sugar by promoting glucose uptake by cells
D.	Increases blood sugar by promoting glucose release from adipose tissue	Increases blood sugar by stimulating glucose absorption in the intestines

3. Which describes excitation of the heart?

A. The atrioventricular (AV) node directly initiates the contraction of the ventricles before the atria.

B. The sinoatrial (SA) node generates electrical impulses that cause the atria to contract, followed by the ventricles contracting after a delay at the AV node.

C. The ventricles contract first due to direct stimulation from the Purkinje fibres, followed by atrial contraction.

D. The heart relies on nervous system input to generate every heartbeat, starting at the AV node and spreading to the SA node.

4. An archer is practicing indoors where the temperature of the environment is 21 °C. Which process transfers the most heat energy from the archer to the environment?

A. Conduction

B. Convection

C. Evaporation

D. Radiation

5. Cardiovascular data from four women is provided. Which data would suggest an unhealthy, untrained adult?

	Resting heart rate / bpm	**Maximal heart rate / bpm**	**Resting stroke volume / ml**	**Resting blood pressure / mmHg**
A.	48	183	90	117/75
B.	93	170	70	140/90
C.	60	205	50	115/66
D.	72	198	60	120/80

6. Oxygen concentration levels vary between alveoli and pulmonary capillaries, creating an oxygen diffusion gradient. Which causes a larger gradient during aerobic exercise?

A. Greater arteriovenous oxygen difference due to increased muscle respiration

B. Faster respiratory rate during maximal aerobic work

C. Greater inhalation of oxygen during increased ventilation

D. Faster removal of carbon dioxide due to increased forced exhalation

7. Which regulate electrolyte balance?

I. Hypothalamus

II. Pituitary gland

III. Kidneys

A. I and II only

B. I and III only

C. II and III only

D. I, II and III

8. Which causes the early use of lipids as the predominant fuel source during aerobic exercise?

A. High respiration and heart rates

B. Low cardiovascular fitness levels

C. High water saturation levels

D. Low carbohydrate availability

9. Which represents the approximate percentage contribution of each energy system for a basketball player?

	Approximate percentage contribution of energy systems		
	Phosphagen / %	**Glycolytic / %**	**Oxidative / %**
A.	60	20	20
B.	90	10	0
C.	30	20	50
D.	80	2	18

10. A coach analyses VO_2 max data from adult runners aged 25–50 at the end of an endurance training block for the cross-country running season. All runners are non-smokers and completed the same programme with no injuries. What is the data likely to show?

A. Females and males the same age had the same VO_2 max values.

B. Females have a higher VO_2 max value as age increases.

C. Females the same age as males generally have lower VO_2 max values.

D. Females and males show no change in VO_2 max values despite changes in age.

11. A basketball player plans their training around a macrocycle. What is the focus of the transition period?

A. Enhancing power using plyometric training

B. Developing strength of injury-prone muscles using resistance bands

C. Practicing skills under pressure using a constraints-led approach

D. Improving aerobic capacity through high-intensity intervals

12. Which could cause osteoporosis?

I. Increase in age
II. Changes in hormones
III. Family history

A. I and II only

B. I and III only

C. II and III only

D. I, II and III

13. Which apply to the appendicular skeleton?

I. Stores bone marrow
II. Allows movement through levers
III. Provides attachment for tendons

A. I and II only

B. I and III only

C. II and III only

D. I, II and III

14. An athlete sprains the ligaments on the medial side of their ankle while running. What type of movement occurred at the ankle to stretch the medial ligaments?

A. Dorsiflexion

B. Plantarflexion

C. Eversion

D. Inversion

15. What is the role of cartilage?

A. Provides stability at a joint and prevents undesired movement

B. Absorbs shock and reduces friction from movement at a joint

C. Transfers force from muscles to bones to cause desired movements

D. Transmits force at the joint and provides proprioception

16. What is the role of reciprocal inhibition during exercise?

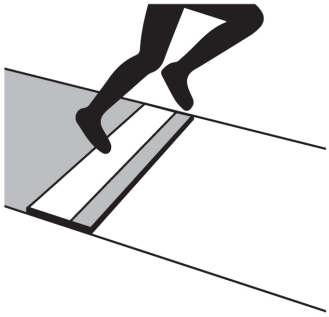
A. It allows both the agonist and antagonist muscles to contract simultaneously.

B. It prevents muscle contractions during passive stretching.

C. It causes the antagonist muscle to relax when the agonist muscle contracts.

D. It inhibits the flow of blood to muscles during maximal exercise.

17. The diagram shows a long jumper beginning their jump. Which describes the mechanical advantage of the lever in the ankle as a long jumper's foot takes off from the board?



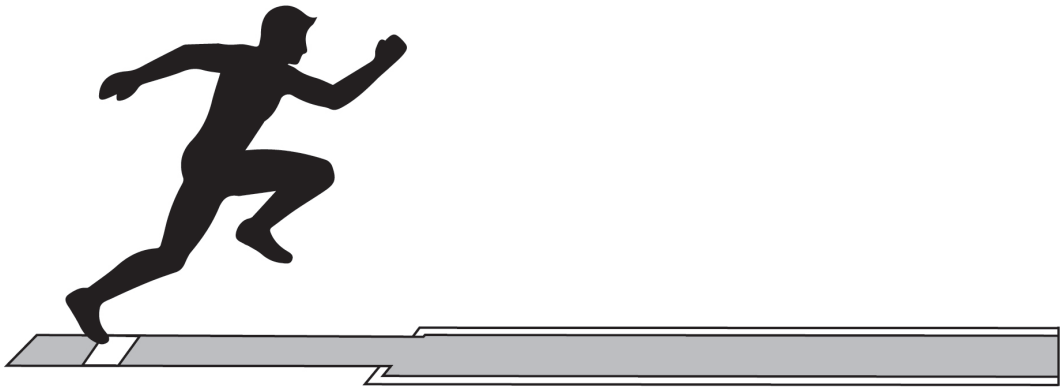
A. The load arm is shorter than the effort arm and there is high mechanical advantage.

B. The load arm and the effort arm are similar lengths and there is no mechanical advantage.

C. The load arm is long and the effort arm is short and there is no mechanical advantage.

D. The load arm and the effort arm are similar lengths and there is high mechanical advantage.

18. Resultant force is affected by the relationship between air resistance, friction, weight and ground reaction force. Which relationship causes the resultant force at take-off during a long jump?



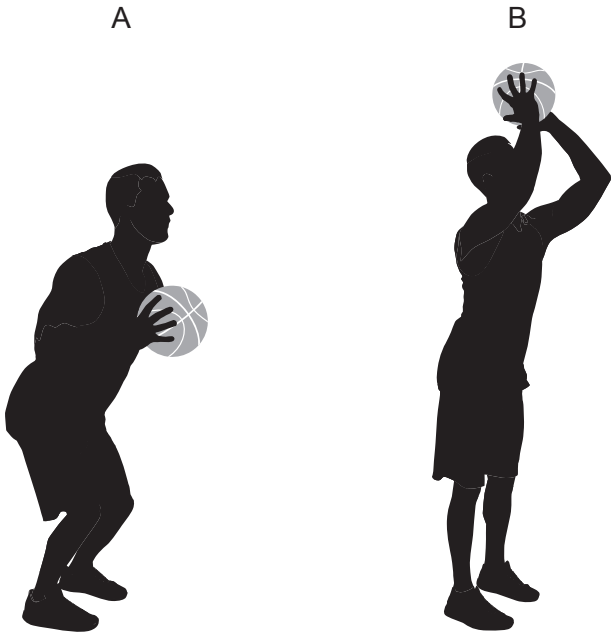
A. Greater air resistance than friction, equal weight and ground reaction force

B. Greater friction than air resistance, greater ground reaction force than weight

C. Equal air resistance and friction, equal weight and ground reaction force

D. Greater air resistance than friction, greater ground reaction force than weight

19. The diagram shows a basketball player preparing to take a shot. What happens to the position of the centre of mass when the basketball player moves from A to B?



A. Moves upwards

B. Moves forwards

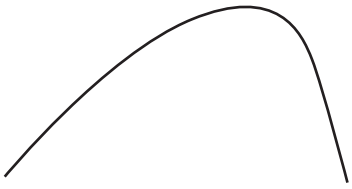
C. Moves downwards

D. No change in position

20. An object's flight path is influenced by the ratio of its weight to air resistance. Which represents the flight path of a shuttlecock (birdie) in badminton?

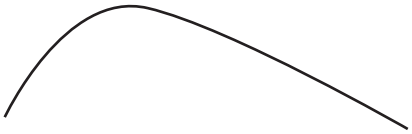
A.

B.



C.

D.



21. Which would result in the shortest horizontal distance when throwing a shot in shot-put?

	Speed of release / m s^{-1}	**Height of release / cm**	**Angle of release / degrees**
A.	12	170	57
B.	9	170	57
C.	12	170	37
D.	9	170	37

22. Which tissue undergoes trauma that causes a concussion?

A. Ligament

B. Cartilage

C. Brain

D. Muscle

23. Which are examples of initial treatment for joint inflammation?

I. Cooling the area with ice and immobilizing the joint

II. Use of NSAIDs

III. Consumption of polyphenols, found in plant-based foods

A. I and II only

B. I and III only

C. II and III only

D. I, II and III

24. An athlete is willing to try new experiences and think originally. Which of "the big five" personality traits could be used to describe the athlete's response?

A. Openness

B. Conscientiousness

C. Extraversion

D. Agreeableness

25. Which is associated with non-linear pedagogy?

A. Shooting 30 times, without an opponent, from the same spot each session

B. Shooting technique is informed and practice is directed by the teacher

C. Shooting from different angles and distances in a small-sided three vs three game

D. Shooting is inconsistent in the cognitive phase but progresses to the autonomous phase

26. Which describes principles-to-skills transfer when learning a skill in baseball?

A. Understanding the biomechanics of hitting and then hitting in a game

B. Training for strength to improve hitting in a game

C. Hitting balls from a machine and then from an opponent

D. Hitting a softball then hitting a baseball

27. Which applies to autonomous motivation?

A. Positively associated with anxiety

B. Focused on engaging in activity due to extrinsic factors

C. Engaging in activity to experience stimulation

D. No perception between effort and reward

28. Which are behaviours of task and recognition for a mastery climate?

A. Ability is referenced and used in all planning and reviews

B. Self-referenced review of performance and leadership in decision-making

C. Passive decision-making and public comparison of performance

D. Differentiated, self-referenced goals and focus on improvement and effort

29. What does catastrophe theory suggest about performance when both cognitive and somatic anxiety are high?

A. No change

B. Optimizes

C. Improves

D. Declines

30. Which is an example of a problem-focused coping strategy for psychological strain?

A. Seeking information and removing the source of stress

B. Regulating feelings around stress but not changing the stressor

C. Relaxing by using self-talk to manage strain caused by the stressor

D. Distancing oneself from the stressor to remove emotional stress

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References:

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