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Sports, exercise and health science
Standard level
Paper 1

25 October 2023

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

45 minutes

Instructions to candidates

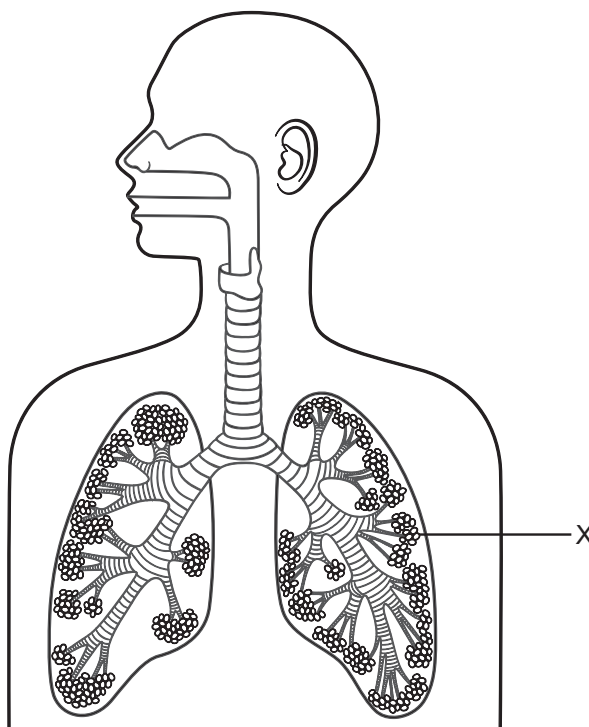
- Do not open this examination paper until instructed to do so.
- Answer all the questions.
- For each question, choose the answer you consider to be the best and indicate your choice on the answer sheet provided.
- The maximum mark for this examination paper is **[30 marks]**.

1. Which movement involves bones of the axial skeleton?
 - A. Extension of the elbow when pitching a baseball
 - B. Rotation of the neck to breathe while swimming freestyle
 - C. Flexion of the knee when rowing
 - D. Pronation of the radius and ulna joint to apply topspin in tennis

2. Which correctly matches the connective tissue to its function?
 - A. Ligaments are the connections between muscles and bones.
 - B. Cartilage reduces friction between bones and helps absorb shock.
 - C. Tendons are the connections between bones and bones.
 - D. The synovial membrane provides stability to the joint.

3. Which is the origin of a muscle?
 - A. The attachment of a muscle to a stationary bone
 - B. The attachment of a muscle to a joint
 - C. The attachment of a muscle to a moveable bone
 - D. The attachment of a muscle to a bursa

4. The diagram shows the ventilatory system.



What is the structure labelled X?

- A. Larynx
 - B. Bronchi
 - C. Trachea
 - D. Alveoli
5. An athlete is exercising outside in a temperature of 20°C. What is the role of the nose in the respiratory airway?
- A. To cool air in the respiratory airway
 - B. To filter dust particles in the inhaled air
 - C. To dry the air in the respiratory airway
 - D. To reduce mucus secretions to the trachea

6. What is the name of the heart valve between the left atrium and left ventricle?

- A. Vena cava
- B. Aortic
- C. Bicuspid
- D. Tricuspid

7. What is the relationship between cardiac output and stroke volume during a warm-up?

	Cardiac output	Stroke volume
A.	elevated	decreased
B.	maintained	elevated
C.	decreased	elevated
D.	elevated	elevated

8. Which defines the term diastolic blood pressure?

- A. The force exerted on arterial walls during atrial contraction
- B. The force exerted on venous walls during atrial contraction
- C. The force exerted on arterial walls during ventricular contraction
- D. The force exerted on venous walls during ventricular contraction

9. An athlete has a high maximal oxygen consumption level (VO_2max). What information does this provide?

- A. The athlete has poor aerobic capacity.
- B. The athlete has good aerobic capacity.
- C. The athlete's oxygen carrying capacity is reduced.
- D. The athlete has a greater reliance on anaerobic respiration.

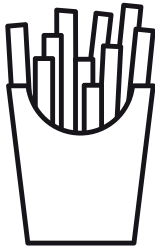
10. Which is a micronutrient?

- A. Lipids
- B. Carbohydrates
- C. Proteins
- D. Minerals

11. Which contains the most saturated fat?

- A. A spoon of vegetable oil
- B. A portion of red meat
- C. A piece of fruit
- D. A cup of grains

12. Which plate represents a balanced diet?



A. French fries



B. Mixed fruit salad



C. Mixed salad with
eggs and nuts



D. Cakes

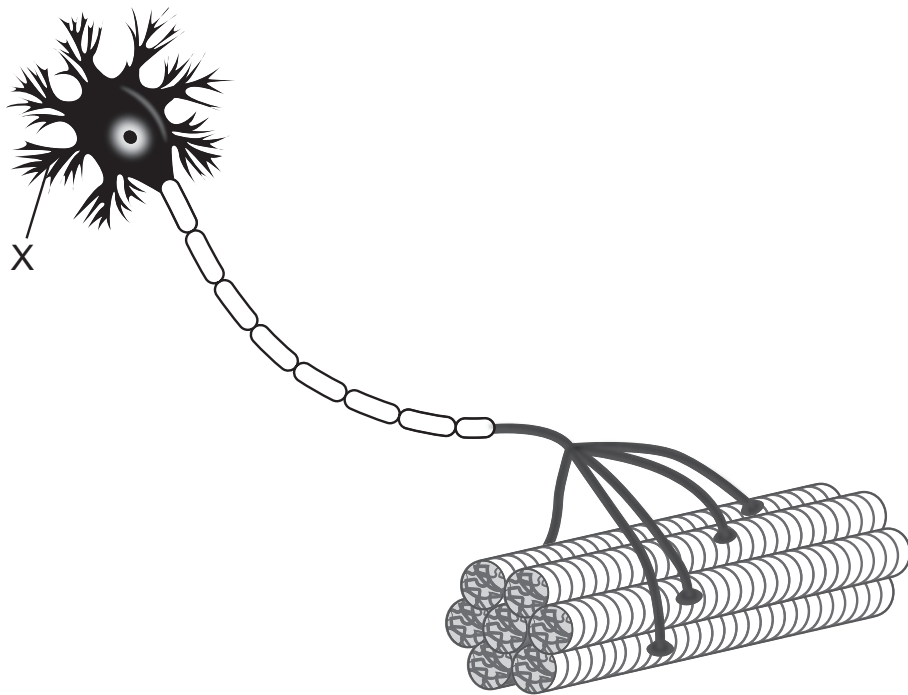
13. Which is a major storage site for glycogen?

- A. Pancreas
- B. Brain
- C. Muscles
- D. Gallbladder

14. Which processes metabolize glucose and fat?

- I. Krebs cycle
 - II. Glycolysis
 - III. Oxidative phosphorylation
- A. I and II only
 - B. I and III only
 - C. II and III only
 - D. I, II and III

15. The diagram shows a motor unit. What is the structure labelled X?



- A. Dendrites
- B. Axon
- C. Motor end plate
- D. Synapse

- 16.** An athlete, while running, sprains the ligaments on the lateral side of their ankle. What type of movement occurred at the ankle to stretch the lateral tendons?
- A. Inversion
 - B. Dorsi flexion
 - C. Plantar flexion
 - D. Eversion
- 17.** Which type of muscle contraction generates force but causes no change in sarcomere length?
- A. Isotonic
 - B. Isometric
 - C. Concentric
 - D. Eccentric
- 18.** Which muscles exhibit reciprocal inhibition?
- A. Biceps brachii and deltoid
 - B. Deltoid and trapezius
 - C. Biceps brachii and triceps brachii
 - D. Biceps brachii and trapezius

19. A basketball player while jumping, presses off the ground using their feet. Which represents the fulcrum?



- A. The gastrocnemius muscle
- B. The heel
- C. The tendon of the gastrocnemius
- D. The toes
20. A tennis ball is hit with backspin through the centre of mass. What effect does backspin have on the flight path of the ball?
- A. The flight distance is greater compared to a ball with no spin.
- B. The ball's flight path will swerve to the left.
- C. The flight distance will be shorter compared to a ball with no spin.
- D. The ball's flight path will swerve to the right.
21. A table tennis player observes the incoming shot before planning and executing their own shot. Which type of skill is involved in this process?
- A. Cognitive
- B. Perceptual
- C. Motor
- D. Perceptual motor

- 22.** Which demonstrates a skilled performer?
- A. A softball player who has a high batting average.
 - B. A basketball player who has a low shooting percentage.
 - C. A gymnast who falls on a beam routine.
 - D. A sprinter who false starts regularly.
- 23.** Which is an example of an exteroceptor?
- A. The eyes detect light.
 - B. The muscle detects information about muscle length.
 - C. The aorta detects information about arterial stretch.
 - D. The medulla chemoreceptors detect changes in pH.
- 24.** Which method of memory improvement involves repeating a skill?
- A. Coding
 - B. Organization
 - C. Rehearsal
 - D. Association
- 25.** Some parts of response time can be altered with training. Which cannot be changed with training?
- A. Detection of a stimulus
 - B. Decision to respond
 - C. Length of neurone
 - D. Initiation of action

26. A child takes up a new sport. Initially, they learn new skills quickly but after a few weeks their learning is slower.

Which type of learning curve represents their rate of learning?

- A. Negative acceleration
- B. Positive acceleration
- C. Linear
- D. Plateau

27. A 200 m swimmer records the time taken to swim each length.

50 m length	Split time (s)
1	29.5
2	30.7
3	31.5
4	30.3

What is the mean time taken to swim 50 m?

- A. 30.3
 - B. 30.5
 - C. 30.7
 - D. 31.0
28. What percentage of the normally distributed data lies within two standard deviations from the mean?
- A. 68 %
 - B. 75 %
 - C. 95 %
 - D. 98 %

- 29.** A study monitored 100 m performance time. Initially, time was recorded using a stopwatch. During the study, the method was modified to use timing gates. Which aspect of study design was enhanced?
- A. Validity
 - B. Safety
 - C. Accuracy
 - D. Specificity
- 30.** Which fitness test is used to measure reaction time?
- A. Illinois agility test
 - B. 40-metre sprint
 - C. Hand grip dynamometer
 - D. Drop test
-

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