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Sports, exercise and health science
Standard level
Paper 1

Tuesday 4 May 2021 (morning)

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]**.

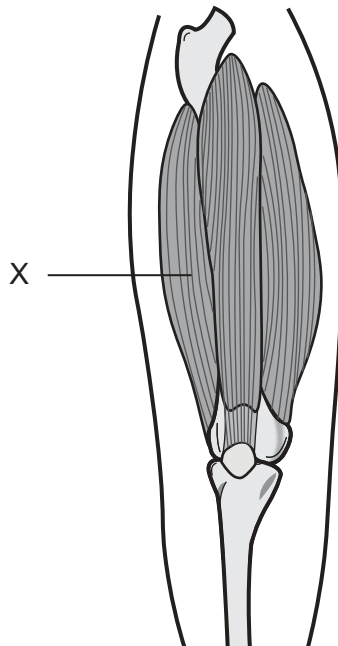
1. What are the functions of the axial skeleton?

A.	muscle attachment	protection of organs	fine motor movement
B.	support of the body	protection of organs	fine motor movement
C.	support of the body	protection of organs	muscle attachment
D.	muscle attachment	support of the body	fine motor movement

2. Which statement is correct about the insertion of a skeletal muscle?

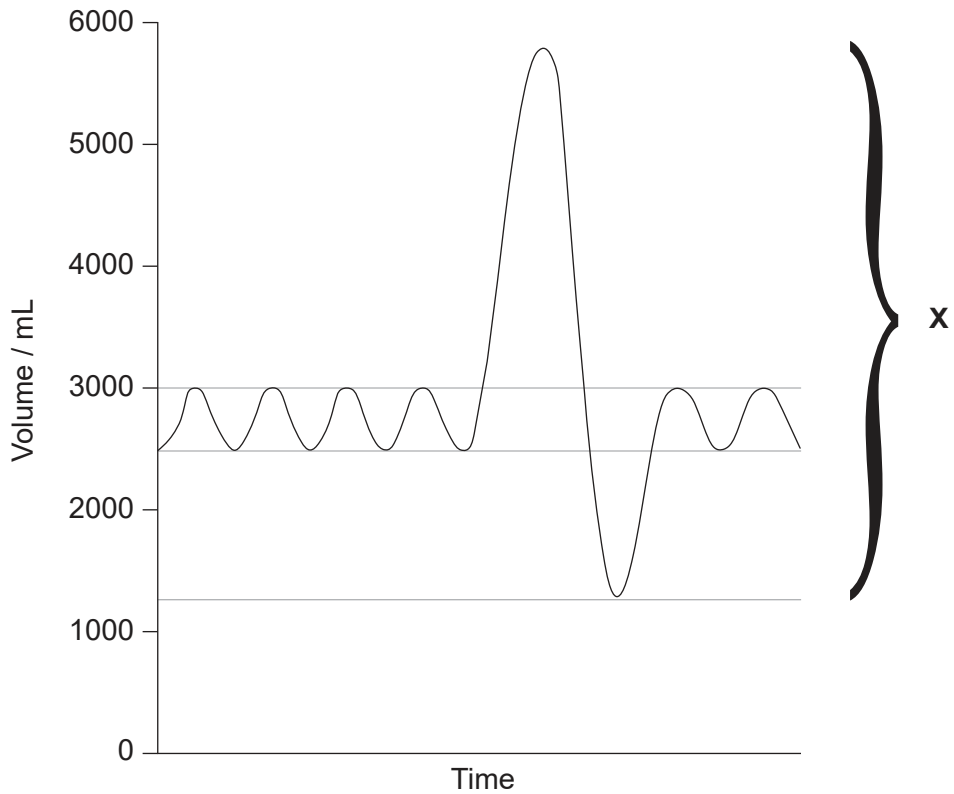
- A. The attachment of a muscle tendon to a moveable bone
- B. The attachment of a muscle tendon to a stationary bone
- C. The attachment of a muscle tendon at the proximal end
- D. The attachment of a muscle tendon on the anterior aspect

3. The diagram shows the skeletal muscles in the anterior upper leg. Which muscle is labelled X?



- A. Rectus femoris
- B. Vastus medialis
- C. Sartorius
- D. Vastus lateralis

4. The graph below represents lung volume. What is labelled X?



- A. Tidal volume
 - B. Vital capacity
 - C. Expiratory reserve volume
 - D. Inspiratory reserve volume
5. Which statement(s) about the functions of the conducting airways is/are correct?
- I. Provide a low resistance pathway for airflow
 - II. Provide a site for gaseous exchange
 - III. Warm and moisten the air
- A. I and II only
 - B. I and III only
 - C. II and III only
 - D. I, II and III

Turn over

6. What causes an increase in ventilation?
- A. A decrease in carbon dioxide content in the blood
 - B. A decrease in hydrogen ions in the blood
 - C. A decrease in blood pH
 - D. A decrease in blood acidity
7. What is the primary role of platelets?
- A. Supporting immune function
 - B. Carrying dissolved substances
 - C. Transporting oxygen
 - D. Blood clotting and preventing bleeding
8. How is cardiac output calculated?
- A. Heart rate \times stroke volume
 - B. Heart rate + stroke volume
 - C. Heart rate + tidal volume
 - D. Tidal volume \times stroke volume
9. What does systolic blood pressure measure?
- A. The force exerted on venous walls during atrial contraction
 - B. The force exerted on arterial walls during atrial contraction
 - C. The force exerted on venous walls during ventricular contraction
 - D. The force exerted on arterial walls during ventricular contraction

10. Which are macronutrients?

- I. Fats
- II. Carbohydrates
- III. Water

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

11. What is the composition of triacylglycerol?

- A. Three glycerol and one fatty acid molecules
- B. One glucose and three fatty acid molecules
- C. One glycerol and three fatty acid molecules
- D. Three glucose and one fatty acid molecules

12. What is a function of adrenaline?

- A. Increases stimulation of the parasympathetic nervous system
- B. Increases heart rate
- C. Decreases glycogenolysis
- D. Decreases heart rate

13. What is the definition of cell respiration?

- A. The controlled release of energy in the form of adenosine triphosphate (ATP) from organic compounds in cells
- B. The controlled release of energy in the form of adenosine diphosphate (ADP) from organic compounds in cells
- C. The controlled release of energy in the form of glycogen from organic compounds in cells
- D. The controlled release of energy in the form of carbon dioxide from organic compounds in cells

Turn over

14. Which energy system is the predominant contributor of ATP for a runner participating in a marathon?
- A. ATP–PC system
 - B. Anaerobic system
 - C. Lactic acid system
 - D. Aerobic system
15. What shortens during muscular contraction according to the sliding filament theory?
- A. Z line
 - B. A band
 - C. H zone
 - D. Actin
16. What is an example of an isotonic eccentric contraction for the triceps?
- A. Lowering phase (elbow flexion) in a push-up
 - B. Lifting phase (elbow extension) in a push-up
 - C. Execution phase (elbow extension) when throwing a ball
 - D. Preparation phase (elbow flexion) when throwing a ball
17. Which term describes a scalar quantity?
- A. Acceleration
 - B. Distance
 - C. Displacement
 - D. Velocity
18. What is an example of a first-class lever?
- A. Triceps contracting, moving the elbow
 - B. Biceps contracting, moving the elbow
 - C. Quadriceps contracting, moving the knee
 - D. Hamstrings contracting, moving the knee

19. How is angular momentum calculated?
- A. Moment of inertia \div angular velocity
 - B. Moment of inertia – angular velocity
 - C. Moment of inertia \times angular velocity
 - D. Moment of inertia + angular velocity
20. For successful completion, which event requires the greatest angle of release?
- A. High jump
 - B. Long jump
 - C. Shot put
 - D. Discus
21. Which is an example of perceptual skill?
- A. Knowledge of team tactics
 - B. Shooting in basketball
 - C. Assessing the putting green in golf
 - D. Receiving a serve in tennis
22. What does ability refer to?
- A. The production of goal-orientated movements
 - B. The way in which a sports skill is performed
 - C. A learned skill that is specific to the task
 - D. The general trait or capacity of the individual
23. Why are yellow balls used in tennis?
- A. To increase signal intensity
 - B. To limit background noise
 - C. To improve the efficiency of sense organs
 - D. To improve memory retrieval

Turn over

24. What is the average capacity of short-term memory?
- A. 1 bit of information
 - B. 2 ± 7 bits of information
 - C. 7 ± 2 bits of information
 - D. Unlimited
25. What is Hick's Law?
- A. There is an increase in reaction time with increased number of choices.
 - B. There is a decrease in reaction time with increased number of choices.
 - C. There is an increase in movement time with increased number of choices.
 - D. There is a decrease in movement time with increased number of choices.
26. Which describes practice to performance transfer in tennis?
- A. Hitting against a ball machine
 - B. Understanding the biomechanics of hitting
 - C. Training for strength to improve hitting
 - D. Hitting right-handed and left-handed
27. An athlete completed five timed trials of a 20 m sprint test. What is the mean time?

Trial	Time (s)
1	3.95
2	4.05
3	3.80
4	4.00
5	4.20

- A. 3.90 s
- B. 3.95 s
- C. 4.00 s
- D. 4.05 s

28. What does a large standard deviation indicate?
- A. The data is clustered closely to the mean.
 - B. The data is spread widely around the mean.
 - C. The data is normally distributed.
 - D. The data is not normally distributed.
29. Which fitness component does the stork stand test?
- A. Reaction time
 - B. Balance
 - C. Strength
 - D. Muscle endurance
30. Which are elements of a general training programme?
- I. Warm up
 - II. Endurance training
 - III. Recreational activities and sports
- A. I and II only
 - B. I and III only
 - C. II and III only
 - D. I, II and III
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References:

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