

**Sports, exercise and health science**  
**Standard level**  
**Paper 1**

Wednesday 18 November 2015 (afternoon)

45 minutes

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**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]**.

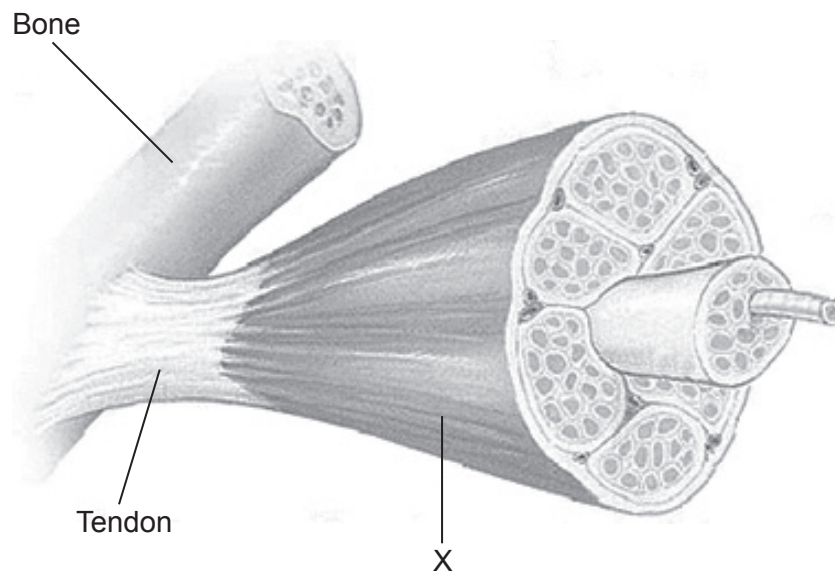
1. Which bones are found within the axial skeleton?

A.	clavicle	ilium	skull
B.	ilium	skull	sternum
C.	vertebrae	ribs	ilium
D.	sternum	vertebrae	ribs

2. What is the position of the clavicle relative to the ilium?

- A. Superior
- B. Inferior
- C. Lateral
- D. Medial

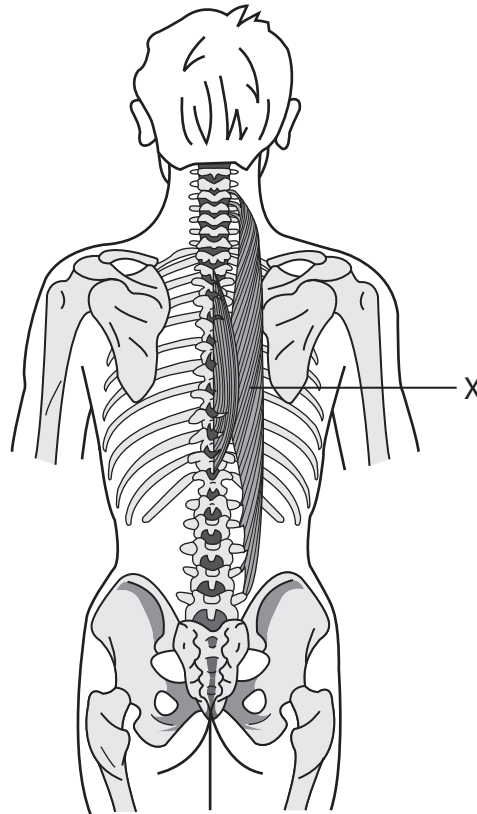
3. What structure is labelled X in the diagram below?



[Source: [https://commons.wikimedia.org/wiki/File:Skeletal\\_muscle.png](https://commons.wikimedia.org/wiki/File:Skeletal_muscle.png)]

- A. Perimysium
- B. Endomysium
- C. Epimysium
- D. Myofibril

4. What muscle is labelled X in the diagram below?



[Source: © International Baccalaureate Organization 2016]

- A. Trapezius
  - B. Erector spinae
  - C. Latissimus dorsi
  - D. Triceps brachii
5. Which is a principal structure of the ventilatory system?
- A. Pulmonary artery
  - B. Trachea
  - C. Pulmonary valve
  - D. Capillary

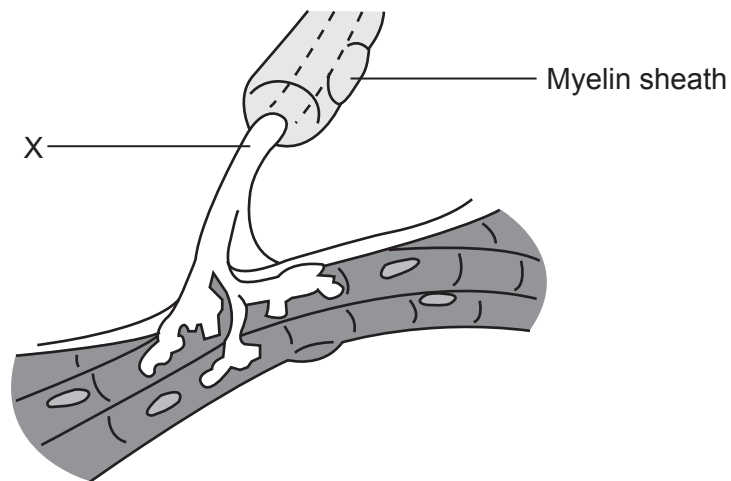
6. What is vital capacity (VC)?
- A. Additional inspired air over and above tidal volume.
  - B. Volume of air breathed in and out in any one breath.
  - C. Inflow and outflow of air between the atmosphere and the lungs.
  - D. Maximum volume of air that can be exhaled after a maximum inhalation.
7. Which gases are exchanged at the alveoli?
- A. Oxygen and nitrogen
  - B. Oxygen and carbon dioxide and nitrogen
  - C. Oxygen only
  - D. Oxygen and carbon dioxide
8. An athlete's resting heart rate is 60 bpm and stroke volume is 70 ml. What is the cardiac output of the athlete?
- A.  $1300 \text{ ml min}^{-1}$
  - B.  $4200 \text{ ml min}^{-1}$
  - C.  $130 \text{ ml min}^{-1}$
  - D.  $420 \text{ ml min}^{-1}$
9. What is systolic blood pressure?
- A. The force exerted by the blood on arterial walls during ventricular contraction.
  - B. The force exerted by the blood on venous walls during ventricular contraction.
  - C. The force exerted by the blood on arterial walls during ventricular relaxation.
  - D. The force exerted by the blood on venous walls during ventricular relaxation.

10. What is an adaptation of endurance exercise training?
- A. Increased heart rate
  - B. Decrease in stroke volume
  - C. Decrease in arterio-venous oxygen difference
  - D. Increase in capillarization around skeletal muscles
11. What is the role of carbohydrates?
- A. Builds tissues
  - B. Helps digestion
  - C. Source of energy
  - D. Provides insulation
12. Which of the following are the elements of a glucose molecule?
- A. C and O
  - B. C and H
  - C. C, H and O
  - D. C, H, O and N
13. Where are the major stores of triglycerides in the body?
- A. Liver
  - B. Skeletal muscle
  - C. Liver and adipose tissue
  - D. Skeletal muscle and adipose tissue
14. What is the net amount of ATP produced by the lactic acid system?
- A. 1 ATP
  - B. 2 ATP
  - C. 34 ATP
  - D. 38 ATP

15. What are by-products of the aerobic system?

- A.  $\text{CO}_2$
- B. ATP
- C.  $\text{CO}_2$  and  $\text{H}_2\text{O}$
- D.  $\text{H}_2\text{O}$

16. What is the structure labelled X in the motor unit below?

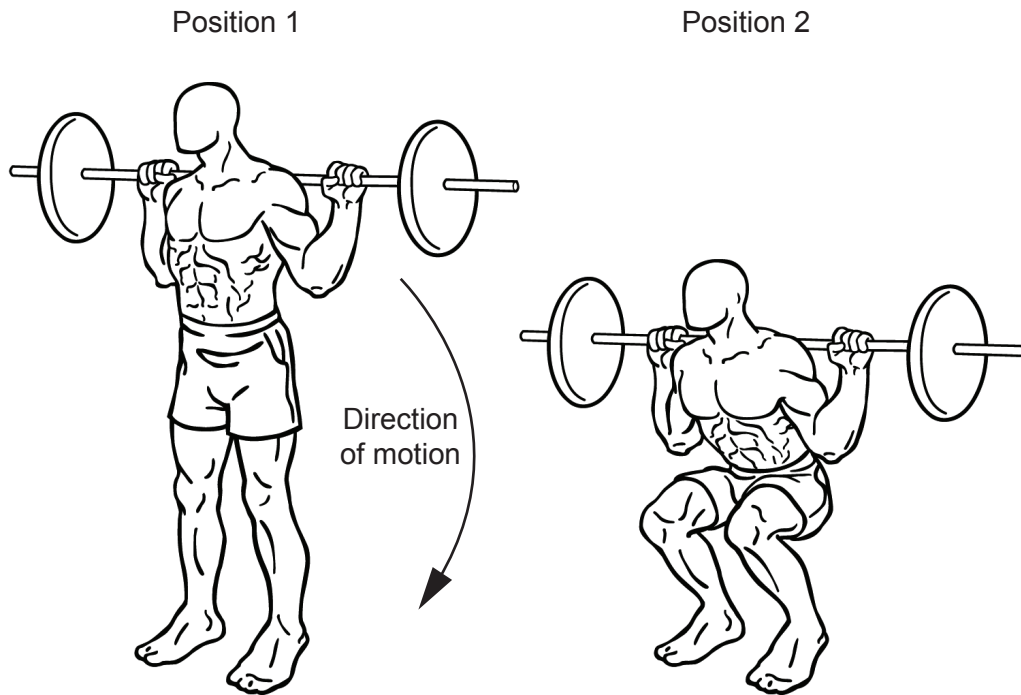


- A. Axon
- B. Synapse
- C. Muscle
- D. Motor end plate

17. Which movement occurs at the pivot joint?

- A. Flexion
- B. Extension
- C. Rotation
- D. Circumduction

18. Which muscle contraction occurs in the rectus femoris during the downward phase of a squat, moving from position 1 to position 2?



[Source: <http://commons.wikimedia.org/wiki/File:Squats.png>]

- A. Eccentric
- B. Concentric
- C. Isometric
- D. Isokinetic
19. Which of the following states that force is the product of mass multiplied by acceleration?
- A. Newton's first law
- B. Newton's second law
- C. Bernoulli's principle
- D. Law of angular momentum

20. Which type of lever is shown in the diagram below?

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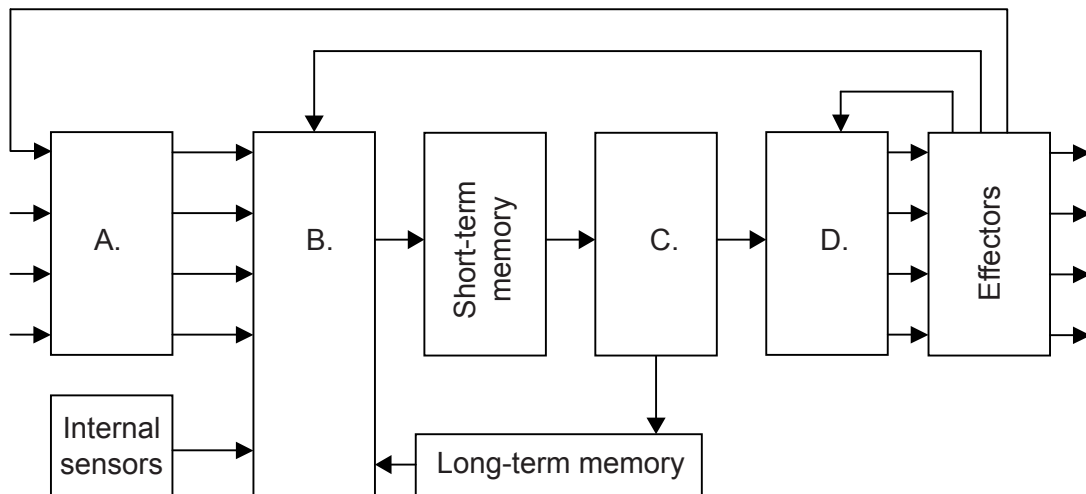
- A. First class
  - B. Second class
  - C. Third class
  - D. Resistance class
21. What is the definition of *technique*?
- A. Method in which a sport skill is performed
  - B. Consistent production of goal-oriented movements
  - C. General trait of an individual related to performance
  - D. Controlled, learned and fluid movement



22. Which sequence represents the psychological refractory period (PRP)?

A.	stimulus 1	stimulus 2	response 1	response 2
B.	stimulus 1	response 1	stimulus 2	response 2
C.	stimulus 1	response 2	stimulus 2	response 1
D.	stimulus 1	stimulus 2	response 2	response 1

23. Which is the decision making stage in Welford's model of information processing shown below?



[Source: Figure adapted from P. Beashel et al. (1999) *Advanced Studies in Physical Education and Sport*, page 244 (Nelson Thornes, 1999) used by permission of the publishers, Oxford University Press.]

24. Which of the following statements classifies learning?

- A. A change in performance over time.
- B. A temporary occurrence fluctuating over time.
- C. The experience of one skill used in learning another skill.
- D. The stable traits that are not affected by the environment.

25. Which type of practice requires the performer to continuously repeat the same skill in a closed environment?
- A. Fixed (drill)
  - B. Massed
  - C. Variable
  - D. Distributed
26. An athlete scores 25.7 cm, 24.5 cm, 23.3 cm and 26.5 cm in a vertical jump test. What is the mean score?
- A. 26 cm
  - B. 27 cm
  - C. 24 cm
  - D. 25 cm
27. What percentage of values lie within  $\pm 1$  standard deviation of the mean?
- A. 65 %
  - B. 68 %
  - C. 95 %
  - D. 98 %
28. What is the role of a Physical Activity Readiness Questionnaire (PAR-Q)?
- A. To collect general information about the participants.
  - B. To identify health concerns and ensure the safety of participants.
  - C. To record performance data on participants engaging in sport.
  - D. To exclude participants from a research project.

29. Which will occur should an athlete **not** train for a period of time?

- A. Specificity
- B. Progression
- C. Overload
- D. Reversibility

30. Which of the following can be used to monitor exercise intensity?

- I. Borg scale
  - II. OMNI scale
  - III. CERT scale
- A. I only
  - B. I and II only
  - C. II and III only
  - D. I, II and III
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