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Sports, exercise and health science

Standard level

Paper 1

29 April 2025

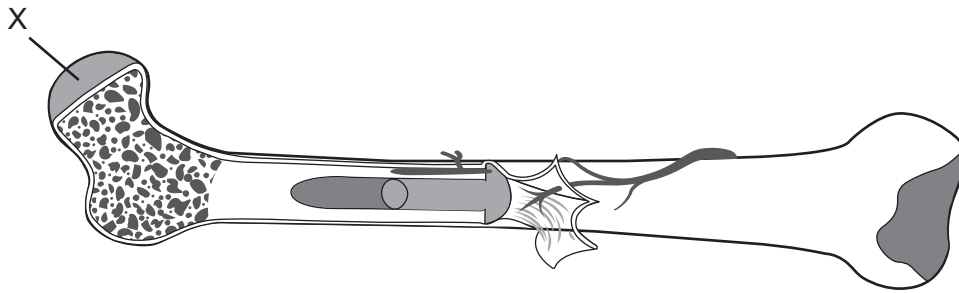
Zone A afternoon | **Zone B** afternoon | **Zone C** afternoon

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. What does X represent?



- A. Diaphysis
 - B. Spongy bone
 - C. Periosteum
 - D. Articular cartilage
2. The radius and ulna articulate at the radioulnar joint. What is this type of joint?
- A. Saddle
 - B. Pivot
 - C. Condylloid
 - D. Gliding

3. Which are features of smooth muscle?

	Control	Appearance
A.	Involuntary	Striated
B.	Voluntary	Striated
C.	Involuntary	Not striated
D.	Voluntary	Not striated

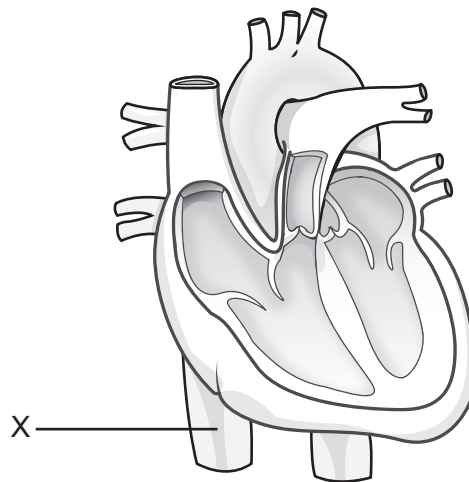
4. Where is hemoglobin located?

- A. In white blood cells
- B. In platelets
- C. In muscle cells
- D. In red blood cells

5. Which are carried in the plasma of the blood?

- I. Glucose
 - II. Calcium ions
 - III. Carbon dioxide
- A. I and II only
 - B. I and III only
 - C. II and III only
 - D. I, II and III

6. The diagram shows the human heart. What structure is labelled X?



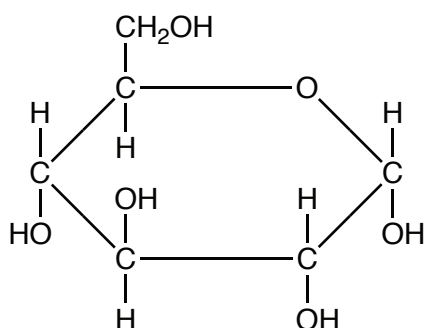
- A. Aorta
- B. Pulmonary artery
- C. Pulmonary vein
- D. Vena cava
7. Which defines diastolic blood pressure?
- A. The force exerted on arterial walls during ventricular contraction
- B. The force exerted on arterial walls during ventricular relaxation
- C. The force exerted on venous walls during ventricular contraction
- D. The force exerted on venous walls during ventricular relaxation
8. What adaptations result from endurance exercise training?

	Left ventricular volume	Resting heart rate	Capillarization
A.	Increases	Increases	Increases
B.	Remains constant	Decreases	Remains constant
C.	Increases	Decreases	Increases
D.	Decreases	Remains constant	Decreases

9. Which identifies the mechanics of ventilation?

	Process	Muscle action	Volume	Pressure
A.	Inhalation	Diaphragm contracts	Increases	Decreases
B.	Exhalation	External intercostals relax	Increases	Decreases
C.	Inhalation	External intercostals relax	Decreases	Increases
D.	Exhalation	Diaphragm contracts	Decreases	Increases

10. What is the molecule in the diagram?



- A. Glycerol
- B. Glucose
- C. Amino acid
- D. Fatty acid

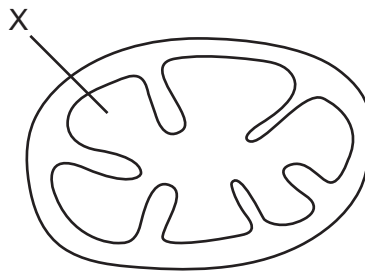
11. Which describes unsaturated fats?

	Bonds	Example
A.	No double bonds	Olive oil
B.	One or more double bonds	Peanuts
C.	No double bonds	Avocado
D.	One or more double bonds	Coconut oil

12. What is the function of glucagon during fasting?

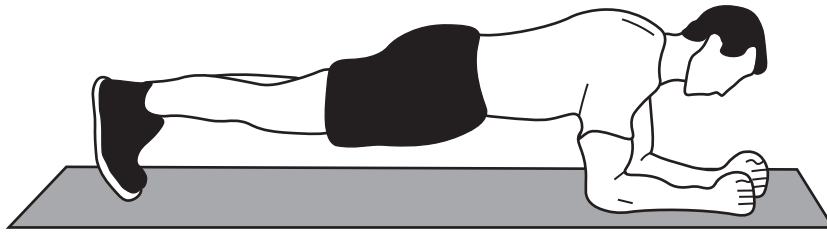
- A. It stimulates the storage of lipids
- B. It stimulates the storage of glucose
- C. It stimulates the breakdown of glycogen
- D. It stimulates the breakdown of insulin

13. The diagram shows a mitochondrion. What is labelled X?

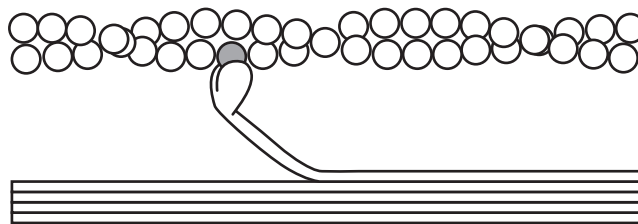


- A. Matrix
 - B. Cristae
 - C. Outer membrane
 - D. Inner membrane
- 14.** Which process breaks down triglycerides into glycerol and fatty acids?
- A. Glycogenolysis
 - B. Lipogenesis
 - C. Lipolysis
 - D. Gluconeogenesis

15. The diagram shows an athlete in the plank pose. What type of muscle contraction occurs at the abdominus rectus?

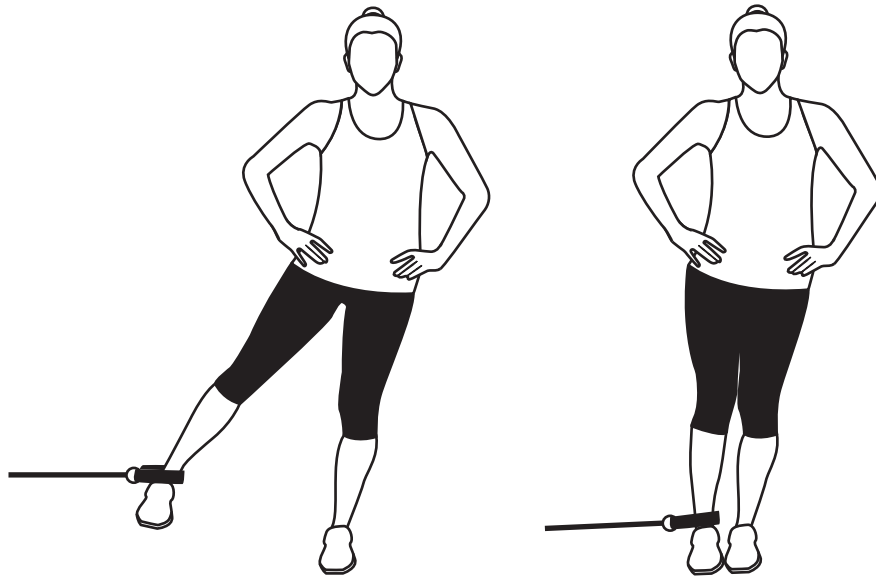


- A. Isometric
- B. Concentric
- C. Eccentric
- D. Isokinetic
16. The diagram shows the crossbridge formation. Which is required for detachment?



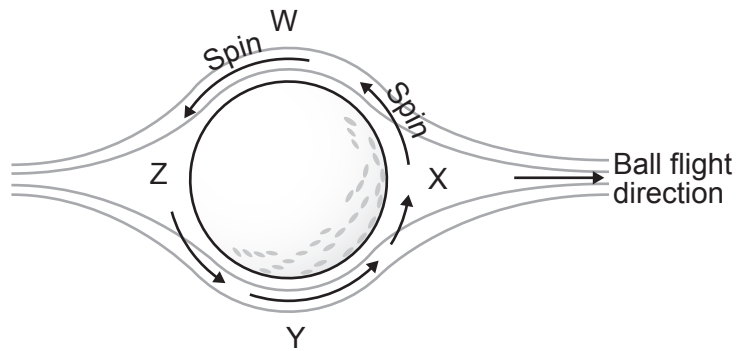
- A. ATP
- B. Ca^{+2}
- C. Na^{+2}
- D. $\text{ADP} + \text{P}_i$

17. In the diagram below an athlete uses a leg pulley machine. What action occurs at their right hip joint?

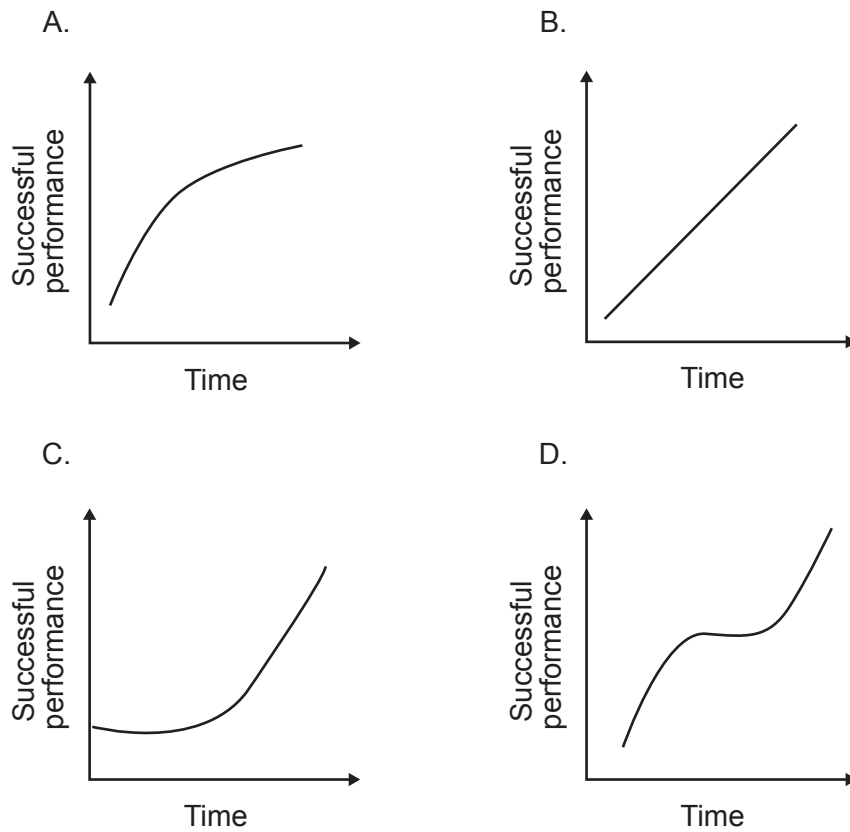


- A. Flexion
 - B. Rotation
 - C. Abduction
 - D. Adduction
18. Which is a factor in delayed onset muscle soreness (DOMS)?
- A. Lactic acid accumulation
 - B. Concentric muscle contractions
 - C. Inflammation of fibres
 - D. Low-intensity exercises
19. What is acceleration?
- A. A change in velocity and direction
 - B. A change in displacement
 - C. A change in position from a starting point
 - D. A change in linear momentum

20. Which area around the golf ball has the highest air pressure?



- A. W
B. X
C. Y
D. Z
21. Which graph shows a negatively accelerated learning curve?



- 22.** Which time period describes reaction time?
- A. The beginning to the end of the movement
 - B. The initiation of movement to stimulus one to the introduction of stimulus two
 - C. The introduction of a stimulus to the end of the movement
 - D. The introduction of a stimulus to the beginning of the movement
- 23.** What is *technique*?
- A. The way an action is learned
 - B. Goal-focused movements which are learned
 - C. The general traits an athlete possesses
 - D. The way that a skill is performed
- 24.** Which are characteristics of short-term memory?
- I. Short duration (approximately 10 seconds)
 - II. Limited capacity (7 ± 2 bits of information)
 - III. Information is retrieved the following day
- A. I and II only
 - B. I and III only
 - C. II and III only
 - D. I, II and III
- 25.** Which is an example of the associative stage of learning?
- A. A gymnast detects and self-corrects movements on a balance beam without external feedback.
 - B. A soccer (football) player talks through the steps of a throw-in as they attempt the skill.
 - C. A tennis player detects movement of a serve and receives some feedback from a coach.
 - D. A basketball player consistently dribbles and evaluates the movement of opponents.

26. A wrestling coach places team members in pairs and tells them to complete a takedown and for partners to provide feedback. What is this teaching style?
- A. Reciprocal
 - B. Command
 - C. Problem-solving
 - D. Variable
27. A track coach evaluates shot put distances for an athlete over a season. The mean distance was 7.6 ± 0.5 (m). Which distances (m) fall within 1SD?
- A. 7.6–8.1
 - B. 7.1–8.1
 - C. 6.6–8.6
 - D. 7.1–7.6
28. A basketball coach wants to measure the power of an athlete and selects the vertical jump test instead of the standing broad jump test. Which applies to this selection of fitness test?
- A. Reliability
 - B. Specificity
 - C. Validity
 - D. Accuracy

29. Which components of fitness can be applied to the examples to enhance performance?

	Example	Components of fitness
A.	An athlete performing a 60 m indoor sprint	Agility, reaction time, power
B.	A gymnast performing a single vault	Agility, reaction time, flexibility
C.	A soccer (football) goalkeeper making a save	Agility, reaction time, flexibility
D.	A swimmer competing in an 800 m race	Agility, cardiovascular endurance, flexibility

30. The warm-up is an essential element of a general training programme. Which are benefits of a warm-up?

- I. Increases the respiration rate
 - II. Lowers heart rate
 - III. Reduces muscle soreness
- 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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