Diploma Programme
Programme du diplôme
Programa del Diploma

Sports, exercise and health science
Standard level
Paper 1

7 November 2024

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]**.

8824 – 6804

11 pages

1. Which bone is found in the axial skeleton?

A. Femur

B. Coccyx

C. Ulna

D. Ilium

2. Which is the number of different types of synovial joints?

A. 3

B. 6

C. 9

D. 12

3. Which term defines a muscle's ability to rebound once stretched?

A. Contractility

B. Atrophy

C. Extensibility

D. Elasticity

4. Which describes inspiratory reserve volume (IRV)?

A. Inflow and outflow of air between the atmosphere and the lungs

B. Maximum volume of air in the lungs after a maximum inhalation

C. Volume of air still contained in the lungs after a maximal exhalation

D. Additional inspired air over and above tidal volume

5. Which of these stimulates an increase in ventilation as exercise begins?

A. Decreasing blood pH levels

B. Decreasing blood adrenaline levels

C. Decreasing blood carbon dioxide levels

D. Decreasing blood oxygen levels

6. Which is a cellular component of blood?

A. Platelets

B. Proteins

C. Electrolytes

D. Hormones

7. Which valve opens to allow blood to enter the right ventricle?

A. Aortic

B. Tricuspid

C. Pulmonary

D. Bicuspid

8. Which best describes an erythrocyte?

A. Small colourless fragments that help to clot wounds

B. A protein which fights pathogens

C. Contains haemoglobin and has no nucleus

D. Transports nutrients and is predominantly made of water

9. Which variable is most responsible for the increase in maximal cardiac output a trained endurance athlete can sustain in acute bouts of exercise?

A. Elevated maximal heart rate

B. Increased stroke volume

C. Increased capillarization

D. Increased arterio-venous oxygen difference

10. Which nutrient repairs tissues in the body?

A. Lipids

B. Carbohydrates

C. Proteins

D. Fibre

11. Which is the chemical composition of glucose?

A. $C_4H_8O_4$

B. $C_6H_{12}O_6$

C. $C_8H_{16}O_8$

D. $C_{12}H_{24}O_{12}$

12. Which statement accurately describes how the body ensures adequate levels of the essential amino acid lysine?

A. Lysine can be made by combining two other amino acids.

B. Lysine can be made by bacteria living in the gut of humans.

C. Lysine cannot be manufactured in the body and must be obtained from the diet.

D. Lysine can be manufactured from more complex amino acids in the body.

13. Which is a major storage site of glycogen?

A. Stomach

B. Blood

C. Brain

D. Liver

14. With sufficient fuel availability, what is the effect of muscle cell oxygen levels on fuel use to produce adenosine triphosphate (ATP)?

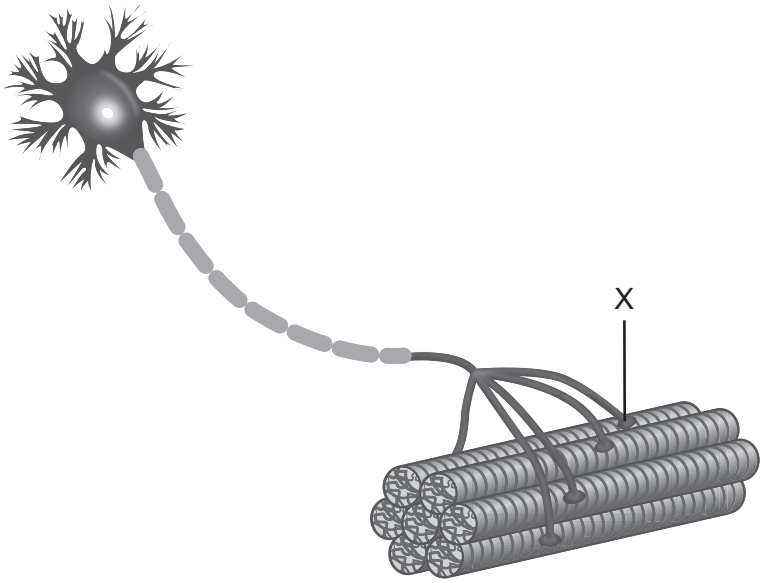
A. Elevated oxygen will promote the use of carbohydrates and fatty acids.

B. Depressed oxygen will promote the use of carbohydrates and fatty acids.

C. Elevated oxygen will promote the use of proteins.

D. Depressed oxygen will do little to promote any specific fuel.

15. What is labelled X?



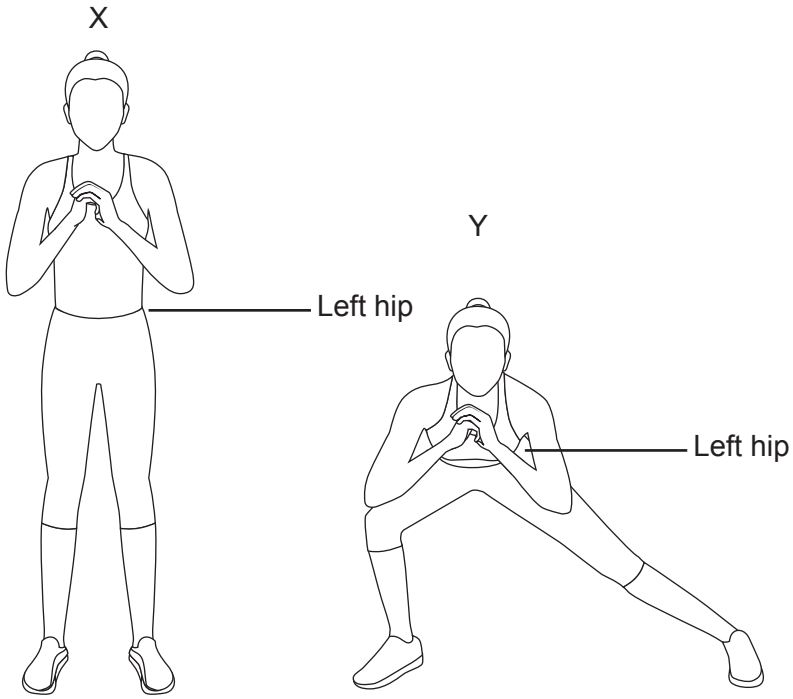
A. Dendrite

B. Nucleus

C. Motor end plate

D. Axon

16. Which type of movement best describes the position at the left hip when moving from X to Y?



A. Extension

B. Abduction

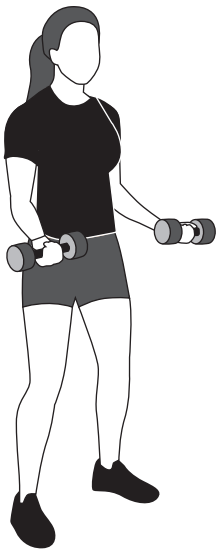
C. Flexion

D. Adduction

17. What type of muscle contraction is occurring at the biceps brachii?

Start Position

End Position



A. Isokinetic

B. Concentric

C. Eccentric

D. Isometric

18. Which best defines momentum?

A. A vector quantity that describes the push or pull of an object in space.

B. A vector quantity that describes the measurement of mass in motion.

C. A scalar quantity that describes how fast an object is moving.

D. A scalar quantity that describes the amount of matter in an object.

19. What is the definition of Newton's first law of motion?

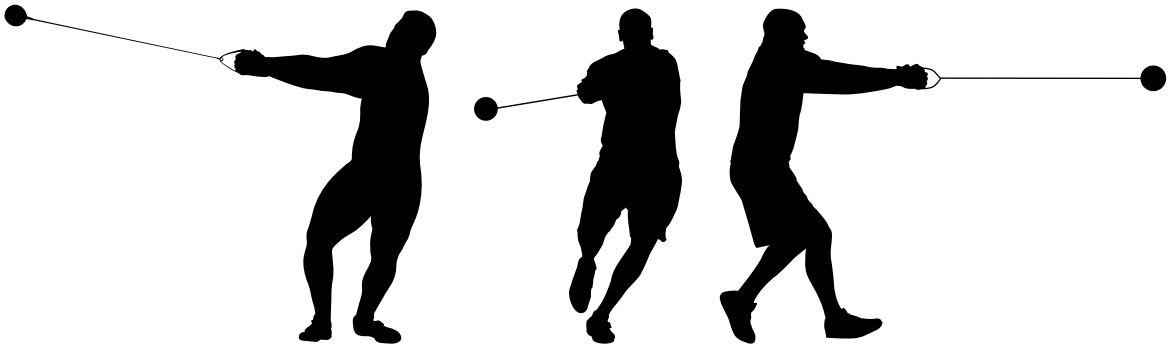
A. For every action force, there is an equal and opposite reaction force.

B. An amount of force applied over a given time.

C. Every object will continue with uniform velocity unless acted upon by an unbalanced force.

D. Force equals mass multiplied by acceleration.

20. Which would cause a change to the hammer's moment of inertia?



I. Decrease the radius by shortening the chain on the hammer.

II. Increase the mass of the hammer.

III. Increase the radius by lengthening the chain on the hammer.

A. I and II only

B. II and III only

C. I and III only

D. I, II and III

21. Which is the best classification of skill for a tennis player returning serve?

	Gross to fine	Individual or interactive	External to internal pacing
A.	gross	interactive	external
B.	fine	individual	internal
C.	fine	interactive	internal
D.	gross	individual	external

22. Which represents technique?

A. A tennis player chooses to use a double-handed backhand.

B. A soccer player works on their anaerobic capacity.

C. The regular practice of yoga can improve flexibility.

D. A basketball player works to improve their leg strength.

23. Which is an example of an interoceptor?

A. The eyes can determine the location of the cricket ball during the pitch.

B. The respiratory centre monitors blood pH.

C. The muscle tendon organs can determine whether a muscle is stretched.

D. The skin determines change in pressure associated with touch.

24. Which best describes the effects on response time in accordance with Hick's Law?

A. An athlete anticipates an outcome and is able to respond sooner, decreasing response time.

B. Neural transmission slows as an individual ages, increasing response time.

C. As an athlete strengthens, the stimulus response time is decreased.

D. As an athlete has a large number of potential outcomes to action, response time increases.

25. When a coach provides feedback on technique to an athlete during a performance, which option best describes the feedback?

I. Concurrent
II. External
III. Terminal

A. I and II only

B. II and III only

C. I and III only

D. I, II and III

26. What number of standard deviations will encompass 95 % of normally distributed data?

A. One

B. Two

C. Three

D. Four

27. Which demonstrates the best situation to use coefficient of variation rather than standard deviation?

A. Comparing the times of two track athletes over a season.

B. Comparing the height of cyclists and their time-trial times.

C. Comparing BMI of all track runners competing at a meet.

D. Comparing the age of participants in a cycle race.

28. Which best demonstrates the principle of accuracy when fitness testing speed?

A. A timer and measuring tape are rarely calibrated.

B. Five trials of a vertical jump test are recorded to provide a mean value.

C. A researcher uses electronic time gates rather than manual watches in a sprint test.

D. The sprint test used over a number of repeated trials with a small standard deviation.

29. Which component of fitness is indicated by the ability to maintain force output of a muscle during an activity?

A. Body composition

B. Cardio-respiratory fitness

C. Flexibility

D. Muscular endurance

30. Which essential element of a general training programme would most appropriately include dynamic stretching?

A. Endurance training

B. Resistance training

C. Warm-up

D. Cool-down

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References:

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