Diploma Programme
Programme du diplôme
Programa del Diploma

Sports, exercise and health science
Standard level
Paper 1

Friday 4 November 2022 (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]**.

8822 – 6604

10 pages

1. Which bone is correctly categorized?

	Bone	Axial or appendicular	Anatomical function
A.	sacral	axial	protection
B.	phalanges	axial	movement
C.	ribs	appendicular	movement
D.	ulna	appendicular	protection

2. Which anatomical term describes the location of the radius in relation to the humerus?

A. Anterior

B. Distal

C. Proximal

D. Lateral

3. Which structure attaches muscle to bone to facilitate movement?

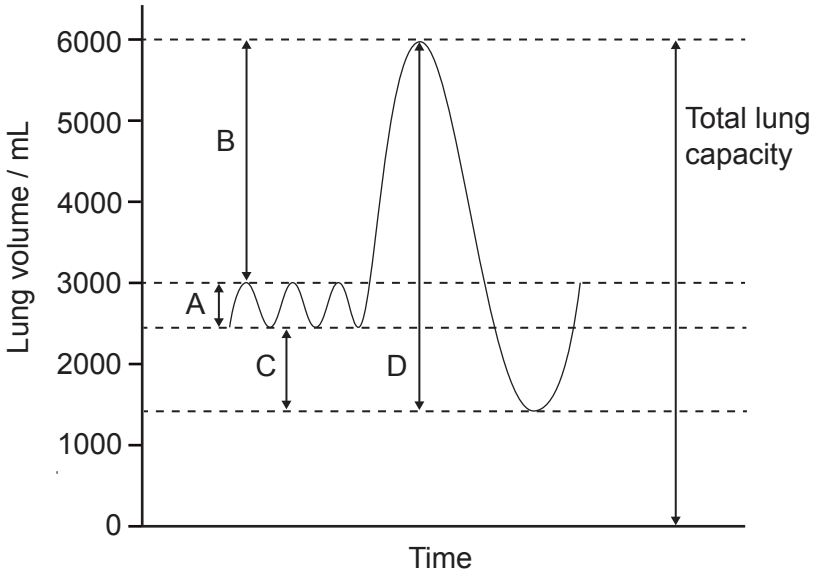
A. Ligament

B. Cartilage

C. Joint

D. Tendon

4. The diagram represents lung volumes and capacities. Which represents vital capacity?



5. What regulates the rate and depth of ventilation when an athlete starts to exercise?

A. An increase in blood pH

B. A decrease in blood pH

C. A decrease in blood CO_2 level

D. An increase in blood O_2 level

6. A healthy athlete is at sea level, at a comfortable temperature in a low-humidity environment. Which condition results in the lowest saturation of hemoglobin?

A. Hemoglobin passing muscle cells as they are contracting

B. Hemoglobin passing muscle cells that are at rest

C. Hemoglobin in blood with a pH above normal blood pH

D. Hemoglobin in blood that is below normal body temperature

7. Which component of the blood has a nucleus?

A. Plasma

B. Leucocyte

C. Erythrocyte

D. Platelet (thrombocyte)

8. Which option represents the highest pressure exerted on the aorta?

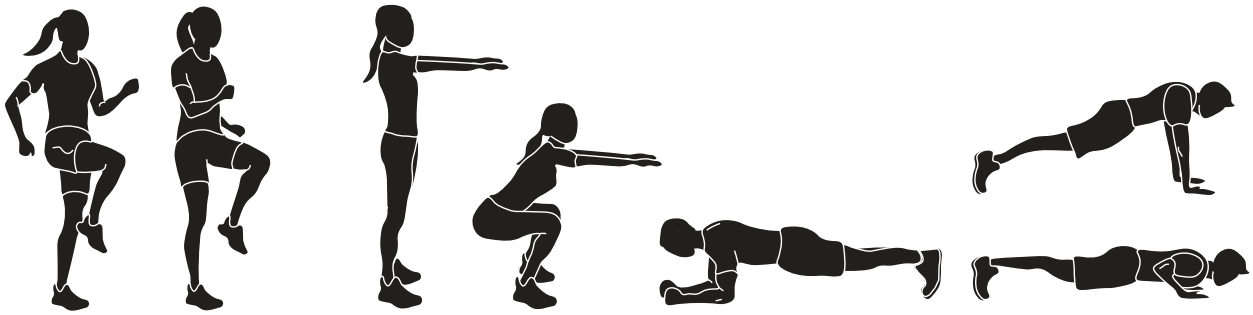
A. Systolic

B. Diastolic

C. Cardiovascular drift

D. Ventricular relaxation

9. Which exercise will result in an elevation of both systolic and diastolic blood pressures?



A. Jogging on the spot B. Squats C. Plank D. Press ups

10. Which combination categorizes macro- and micronutrients correctly?

	Macronutrient	Micronutrient
A.	Lipids	Water
B.	Vitamins	Proteins
C.	Lipids	Vitamins
D.	Water	Proteins

11. Which food is most likely to contain unsaturated fats?

A. Cashew nuts

B. Beef burger

C. Coconut oil

D. Dairy yogurt

12. Which is one characteristic of non-essential amino acids?

A. They are not required for essential bodily processes.

B. They are required from a healthy diet.

C. They can recycle nitrogen from a healthy diet.

D. They can be synthesized by the human body.

13. Which process is represented by the breakdown of sugar in the absence of oxygen?

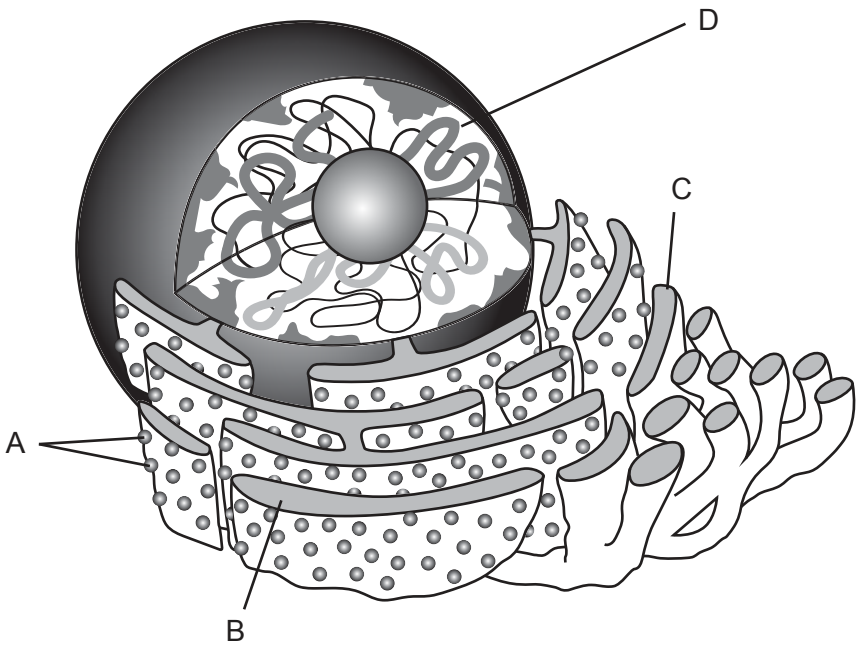
A. Anaerobic anabolism

B. Aerobic anabolism

C. Anaerobic catabolism

D. Aerobic catabolism

14. Which represents the rough endoplasmic reticulum?



15. What is the function of calcium ions during muscle contraction?

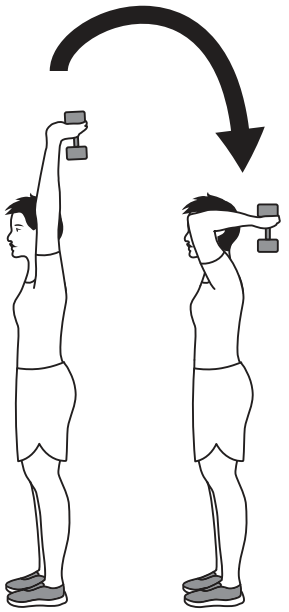
A. Calcium ions move across the synapse to initiate a nerve impulse on the muscle cell.

B. Calcium ions bind to troponin, causing tropomyosin to move, allowing actin and myosin to bind.

C. Calcium ions bind to the myosin head following contraction, allowing detachment of myosin from actin.

D. Calcium ions cause ATP molecules stored in the sarcoplasmic reticulum to be released, initiating contraction.

16. Which contraction occurs in the triceps during the lowering phase of a tricep extension?



A. Isometric

B. Isokinetic

C. Eccentric

D. Concentric

17. Which is a scalar quantity?

A. Speed

B. Acceleration

C. Momentum

D. Force

18. Which is an example of Newton's second law of motion?

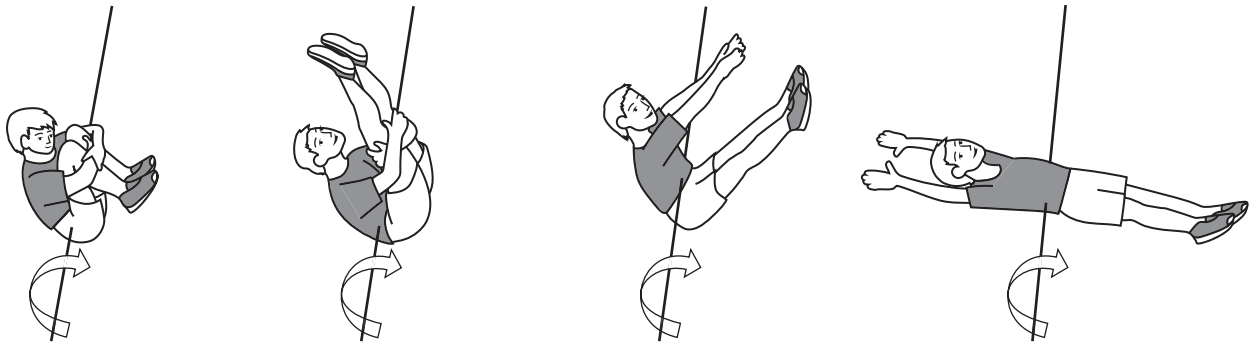
A. The ball is stationary on the penalty spot until it is kicked.

B. The ball will travel faster if greater force is applied by the foot.

C. The ball applies a backwards force on the foot as it is kicked.

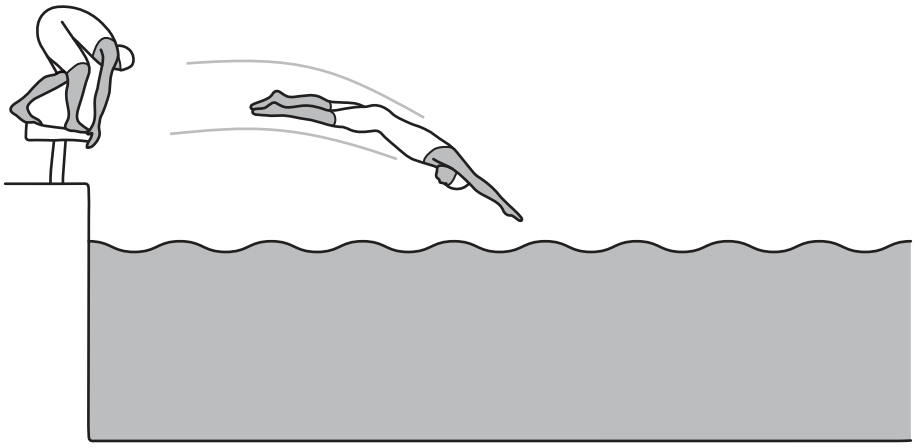
D. Once kicked, a ball in flight is affected by gravity.

19. The diagrams show a gymnast somersaulting. In which position does the gymnast experience the greatest moment of inertia?



A. B. C. D.

20. At the start of a race, a swimmer dives off a raised starting block rather than from the side of the pool. For exactly the same dive, what effect does this have?



A. The swimmer will enter the water at a faster speed.

B. The swimmer will enter the water further from the starting blocks.

C. The swimmer will enter the water closer to the starting blocks.

D. The swimmer will enter the water at the same entry point.

21. What is the consistent production of goal-oriented movements, which are learned and specific to the task?

A. Skill

B. Ability

C. Proficiency

D. Performance

22. Which type of skill is used when a tennis player plans how to hit their serve?

A. Cognitive skill

B. Perceptual skill

C. Perceptual motor skill

D. Motor skill

23. Which describes a simple model of information processing?

A. input → output → decision-making

B. perception → short-term memory → long-term memory

C. short-term memory → long-term memory → perception

D. input → decision-making → output

24. Which is monitored by an interoceptor?

A. Taste

B. Blood pressure

C. Pain

D. Limb location

25. A golfer is following a new training programme to improve the distance of their drive. Data collected from seven weeks of training is shown in the table.

Week	Percent improvement in distance
1	1 %
2	2 %
3	8 %
4	10 %
5	11 %
6	11 %
7	11 %

Which type of learning curve is represented by the data collected during weeks 4–7?

A. Negative acceleration

B. Positive acceleration

C. Linear

D. Plateau

26. Which transfer occurs when a left-handed tennis player learns to hit with their right hand?

A. Skill to skill

B. Abilities to skill

C. Stage to stage

D. Bilateral

27. A scientific study performed a correlation on two variables, velocity (*V*) and agility (*A*) and determined that $r=0.91$. Which correctly describes the variables?

A. Variable *A* causes the changes observed in variable *V*.

B. Variable *V* causes the changes observed in variable *A*.

C. There is a strong relationship between variables *A* and *V*.

D. There is a weak relationship between variables *A* and *V*.

28. Two coaches have been collecting data on their swimming squads. Which statement demonstrates the reliability of data collection?

A. The coaches record similar findings for a 15 m sprint test to compare the squads' start technique.

B. The coaches assess the VO_2max of the swimmers using a flume (water treadmill).

C. The coaches set the swimming ergometer to a standard scale.

D. The coaches collect endurance data for a 10-minute swim.

29. A healthy young person is training to compete in judo at the Youth Olympics. Which is a health-related component of fitness?

A. Agility

B. Balance

C. Coordination

D. Strength

30. What aspect of a training programme is measured using the Karvonen method?

A. Frequency

B. Duration

C. Intensity

D. Flexibility

References: