Diploma Programme
Programme du diplôme
Programa del Diploma

Sports, exercise and health science
Standard level
Paper 1

Friday 6 May 2016 (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]**.

2216 – 6601

1. What type of joint is the ankle?

A. Saddle joint

B. Pivot joint

C. Hinge joint

D. Gliding joint

2. Which of the following bones has the movement of the body as its main function?

A. Fibula

B. Skull

C. Coccyx

D. Sternum

3. What is the main function of the knee joint ligament?

A. To secrete synovial fluid

B. To absorb shock

C. To help with joint stability

D. To provide a friction-free environment

4. Which component of the muscle is labelled X below?

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A. Perimysium

B. Myofibril

C. Sarcomere

D. Muscle fibre

5. Which of the following applies to hemoglobin?

A. It binds strongly to oxygen when there is a low partial pressure

B. It is an iron compound

C. It transports approximately 80 % of oxygen in the blood

D. It is a component of white blood cells

6. Which of the following is the correct order for carbon dioxide moving from the pulmonary artery to the atmosphere?

A. trachea $\rightarrow$ larynx $\rightarrow$ nose

B. alveoli $\rightarrow$ trachea $\rightarrow$ bronchi

C. bronchi $\rightarrow$ trachea $\rightarrow$ bronchioles

D. nose $\rightarrow$ trachea $\rightarrow$ bronchi

7. What does the elevated breathing rate after exercise allow the body to do?

A. To stimulate the peripheral chemoreceptors

B. To increase the pH of the blood

C. To trigger the Hering-Breuer reflex

D. To stimulate muscle proprioreceptors

8. Which of the following are correct statements about the pulmonary and systemic circulatory systems?

I. Pulmonary circulation is driven from the right ventricle to drop off carbon dioxide at the lungs.

II. Systemic circulation brings back oxygen from the lungs for the rest of the body.

III. The vena cava is involved with the systemic circulatory system.

IV. Pulmonary circulation has lower blood pressure than the systemic system.

A. I only

B. II and III only

C. I, III and IV only

D. I, II, III and IV

9. Which of the following is correct for an athlete who is exercising at a steady pace on flat terrain for a prolonged period of time?

A. Stroke volume gradually decreases and submaximal heart rate gradually increases

B. Cardiac output gradually decreases as they get used to the exercise load

C. Stroke volume and submaximal heart rate gradually decrease

D. Stroke volume and submaximal heart rate gradually increase

10. Which of the following correctly describes the sequence of excitation of heart muscle?

A. AV node $\rightarrow$ bundle of HIS $\rightarrow$ SA node

B. SA node $\rightarrow$ AV node $\rightarrow$ bundle of HIS

C. bundle of HIS $\rightarrow$ SA node $\rightarrow$ AV node

D. AV node $\rightarrow$ SA node $\rightarrow$ bundle of HIS

11. What is the chemical composition of a glucose molecule?

A. CH_3 and COOH

B. C, H and O

C. C, H, O and N

D. C, H and OH

12. Which of the following describes lipolysis?

A. The process of releasing triglycerides from the body's fat stores

B. The process of converting glucose to pyruvate

C. The aerobic anabolism of a substance

D. The process of converting carbohydrates to fats in the liver

13. What is the function of adrenaline during exercise?

A. Stimulates the storage of glycogen

B. Stimulates the breakdown of glycogen

C. Stimulates the breakdown of glucagon

D. Stimulates the storage of glucagon

14. Which of the following is the function of the Golgi apparatus?

A. It is involved in the processing and packaging of proteins and fats

B. It is involved in organising the cell during cell division

C. It is involved in the anaerobic production of ATP

D. It assists in the breakdown of food particles

15. Which of the following are features of the ATP-CP system?

I. It provides the energy for the first three minutes of activity.

II. CP is broken down to provide a phosphate molecule.

III. It creates lactic acid as a by-product.

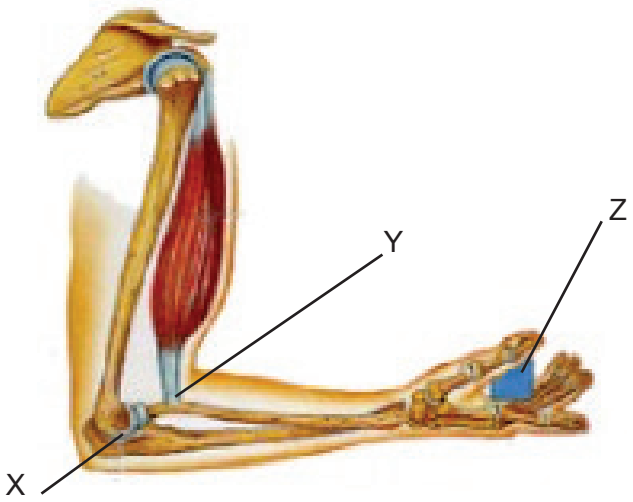
A. I only

B. II only

C. I and II only

D. II and III only

16. Which of the labels for the lever system are correct?



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	Effort	Fulcrum	Load
A.	Y	Z	X
B.	Z	X	Y
C.	X	Y	Z
D.	Y	X	Z

17. Which of the following defines *momentum*?

A. force × time

B. velocity × time

C. mass × velocity

D. mass × distance

18. Which of the following describes Newton's second law of motion?

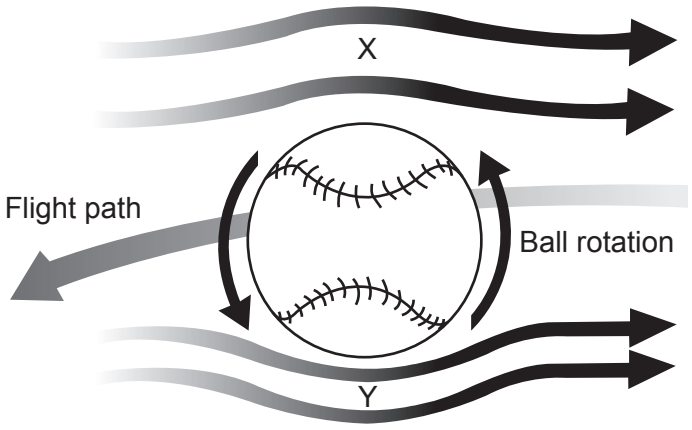
A. The rate of change of momentum of a body is proportional to the force causing it.

B. To bring about motion a force must be applied.

C. When one body applies a force to another the second body will apply an equal and opposite force back.

D. The effect of a constant force on a mass will always be the same.

19. Which of the following correctly labels the components of the Bernoulli principle?



[Source: adapted from https://encrypted-tbn2.gstatic.com]

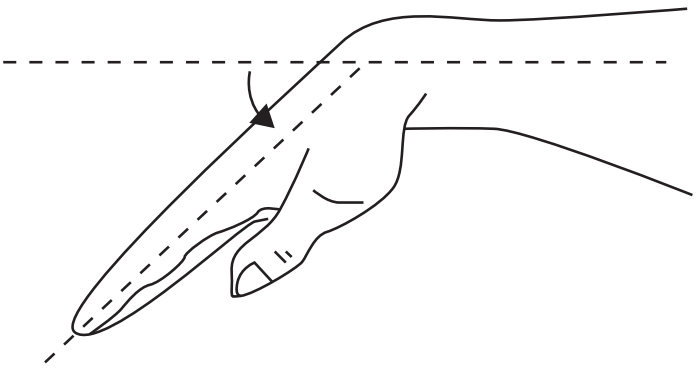
A. Y has higher relative air velocity and X has lower relative air pressure

B. Y is a region of lower relative air velocity and lower relative air pressure

C. X has lower relative air velocity and Y has higher relative air pressure

D. X is a region of lower relative air velocity and higher relative air pressure

20. What is the type of movement occurring at the wrist in the diagram below?



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A. Flexion

B. Extension

C. Pronation

D. Supination

21. Which of the following is correct?

A. Ability = skill + selection of an appropriate technique

B. Skill = ability + selection of an appropriate technique

C. Technique = ability + skill

D. Skill = reaction time + movement time

22. What describes a model of information processing?

A. processing and decision making → input → output

B. input → processing and decision making → output

C. feedback → output → processing and decision making

D. processing and decision making → feedback → output

23. Which of the following describes intrinsic feedback?

A. Post-response information concerning the outcome of an action

B. An awareness of the body's position from sensors in the muscles and tendons

C. Information about the execution of a performance from video

D. Information received from the coach during an activity

24. Which of the following are roles of feedback?

I. To improve motivation to perform

II. To cause a positive acceleration in learning

III. To provide information about an opponent's strengths and weaknesses

A. I only

B. II only

C. I and II only

D. I, II and III

25. What factors contribute to reaction time?

A. Stimulus transmission and nerve transmission

B. Signal detection and muscle movement time

C. Nerve transmission and intrinsic feedback

D. Initiation of an action and extrinsic feedback

26. Which of the following statements are correct for memory?

A. Short term memory will hold information for less than one second and the information will be lost if it is not attended to.

B. Long term memory has a capacity of 7 ± 2 bits and the movement of information to this stage relies on rehearsal.

C. The short term sensory store has a large capacity but any signal is lost very quickly.

D. Short term memory has a larger capacity than both the short term sensory store and long term memory.

27. What does standard deviation represent?

A. The ratio of the correlation to the mean

B. A causal relationship between two variables

C. The correlation between two variables

D. It summarises the spread of values around the mean

28. Which is correct with regard to study design?

A. Validity is when you retest in similar conditions and achieve consistent results.

B. A power athlete performing a vertical jump test with their eyes closed is an example of using a blind study.

C. Reliability is when you undertake a test and it measures what you want.

D. An endurance athlete doing the Cooper's 12 Minute Run to test aerobic power demonstrates specificity.

29. What describes the force that a muscle or group of muscles can exert in a single contraction?

A. Muscular strength

B. Aerobic capacity

C. Speed

D. Muscular power

30. What test is valid for measuring muscular endurance?

A. Sit and reach

B. Stork stand

C. Hand grip dynamometer

D. Flexed arm hang