N14/4/SPEXS/SPM/ENG/TZ0/XX

International Baccalaureate®
Baccalauréat International
Bachillerato Internacional

SPORTS, EXERCISE AND HEALTH SCIENCE
STANDARD LEVEL
PAPER 1

Thursday 6 November 2014 (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]*.

1. Which part of the long bone is labelled X in the diagram?

[Source: www.docstoc.com/docs/4212130/Blank-Long-Bone-Diagram---PowerPoint]

A. Epiphysis

B. Diaphysis

C. Periosteum

D. Yellow bone marrow

2. What is the main role of ligaments acting at a joint?

A. Flexible and strong tissue that connects bone to bone

B. Flexible and strong tissue that connects bone to muscle

C. Thin and shiny membrane that is important for bone growth

D. Flexible tissue that prevents friction between articulating bones

3. Which of these only contains smooth muscle?

A. Heart

B. Vein

C. Iliopsoas

D. Semimembranosus

4. Which statement defines *vital capacity*?

A. Volume of air in the lungs after a maximum inhalation

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

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

D. Maximum volume of air that can be exhaled after a maximum inhalation

5. Which is responsible for an increase in ventilation during exercise?

A. An increase in pH levels of the blood

B. A decrease in carbon dioxide levels

C. An increase in acidity levels of the blood

D. An increase in oxygen levels in the blood

6. Which component of blood has the primary role of fighting infection?

A. Plasma

B. Platelets

C. Leucocytes

D. Erythrocytes

7. What is the correct order for deoxygenated blood entering and leaving the heart?

A. Vena cava → Right ventricle → Right atrium → Pulmonary artery

B. Vena cava → Right atrium → Right ventricle → Pulmonary artery

C. Vena cava → Right ventricle → Right atrium → Pulmonary vein

D. Vena cava → Right atrium → Right ventricle → Pulmonary vein

8. What is the equation for cardiac output?

A. Cardiac output = heart rate – stroke volume

B. Cardiac output = heart rate × tidal volume

C. Cardiac output = tidal volume × frequency

D. Cardiac output = stroke volume × heart rate

9. What is the response of systolic blood pressure and diastolic blood pressure to maximal static exercise?

	Systolic	**Diastolic**
A.	Increase	Increase
B.	Increase	No change
C.	No change	No change
D.	Increase	Decrease

10. Which statement describes unsaturated fat?

A. Found in coconut oil

B. Originates from animal sources

C. Contains a double bond between carbon atoms

D. Contains a single bond between carbon atoms

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

A. HON

B. CHN

C. CHO

D. CHON

12. What is the energy content per 100 g of protein?

A. 1600 kJ

B. 1720 kJ

C. 1760 kJ

D. 4000 kJ

13. Which term describes the breakdown of glycogen into glucose?

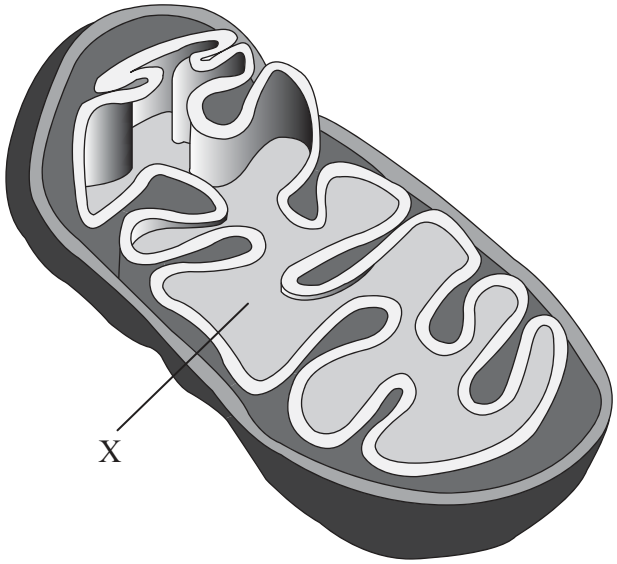
A. Glycolysis

B. Glycogenesis

C. Glycogenolysis

D. Gluconeogenesis

14. Which structure is labelled X on the ultrastructure of a mitochondrion?



[Source: J Sproule, (2012), *Sports, Exercise & Health Science: Course Companion*. Oxford University Press]

A. Cristae

B. Matrix

C. Inner membrane

D. Outer smooth membrane

15. Which is a characteristic of a slow twitch (type I) muscle fibre?

A. High numbers of mitochondria

B. Low capillary density

C. High glycogen stores

D. Low resistance to fatigue

16. Which term is defined as force applied over time?

A. Impulse

B. Velocity

C. Acceleration

D. Displacement

17. What is the definition of *centre of mass*?

A. A measurement that has both size and direction

B. A measurement that only has size

C. A point of interaction between two objects

D. A point at which the weight of an object is balanced in all directions

18. Which factors are important to an athlete throwing a javelin?

I. Projection speed
II. Projection angle
III. Projection height

A. I only

B. I and II only

C. I, II and III

D. II and III only

19. What is the relationship between angular momentum, angular velocity and moment of inertia?

A. moment of inertia = angular momentum × angular velocity

B. angular momentum = angular velocity – moment of inertia

C. angular velocity = angular momentum – moment of inertia

D. angular momentum = angular velocity × moment of inertia

20. Which of the following describes how a spinning golf ball generates lift?

I. Back spin increases the speed on the upper surface of the ball.

II. The pressure on the upper surface of the ball is less than the pressure on the lower surface of the ball.

III. The pressure on the upper surface of the ball is higher than the pressure on the lower surface of the ball.

A. I only

B. III only

C. I and II only

D. II and III only

21. Which of the following is a motor skill?

A. Deciding on the type of shot in basketball

B. Using a weight lifting technique

C. Planning a team's defence in soccer

D. Reading and understanding weather reports when sailing

22. What is a definition of *technique*?

A. The consistent production of a movement

B. The way in which a sports skill is performed

C. Goal-oriented movements that have been learned

D. A general trait of the individual related to the performance of a skill

23. Which is an example of skill to skill transfer?

A. Throwing a tennis ball followed by throwing a javelin

B. Improving muscular strength to jump further in a long jump

C. Kicking a ball using the right foot followed by the left foot

D. Applying the principle of a third class lever when bowling in cricket

24. Which type of practice has little or no rest between simple skills?

A. Fixed (drill)

B. Variable

C. Massed

D. Distributed

25. Which teaching style is teacher-centred, and is used when the activity involves an element of danger?

A. Command

B. Reciprocal

C. Progressive

D. Problem solving

26. What is the mean flexibility score of an athlete from 6 cm, 7 cm and 11 cm?

A. 7 cm

B. 8 cm

C. 9 cm

D. 10 cm

27. What percentage of data is normally distributed within ± 2 standard deviation of the mean?

A. 50 %

B. 68 %

C. 95 %

D. 99 %

28. Which of the following describes reliability?

A. The instrument measures what it claims to measure.

B. The test used should be relevant to real life scenarios.

C. The instrument used must provide an accurate measurement.

D. The same reading is obtained each time a dependent variable is measured.

29. Which component of fitness is a combination of strength and speed?

A. Power

B. Agility

C. Muscular endurance

D. Reaction time

30. Which test measures muscular strength?

A. Vertical jump

B. Flexed arm hang

C. Maximum sit-ups

D. Hand grip dynamometer