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SPORTS, EXERCISE AND HEALTH SCIENCE
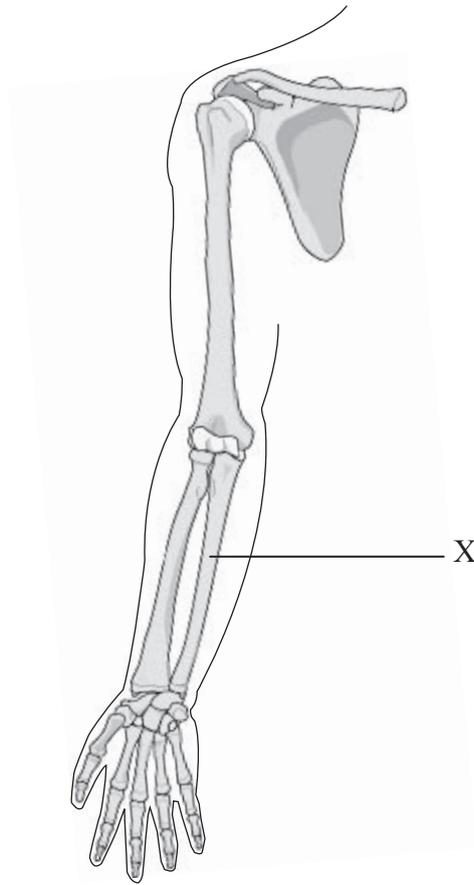**STANDARD LEVEL**
PAPER 1

Wednesday 7 May 2014 (morning)

45 minutes

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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.
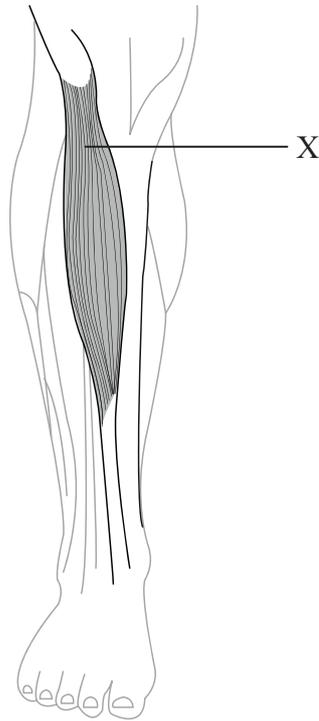- The maximum mark for this examination paper is *[30 marks]*.

1.   What is the name of the bone indicated by label X in the diagram below?

[Source: adapted from http://www.anatomy.gatech.edu/cnotes/skel_f.html]

A.   Radius

B.   Humerus

C.   Scapula

D.   Ulna

2.   What term is used for the point of attachment of the muscle tendon to a stationary bone?

A.   Myofibril

B.   Sarcomere

C.   Origin

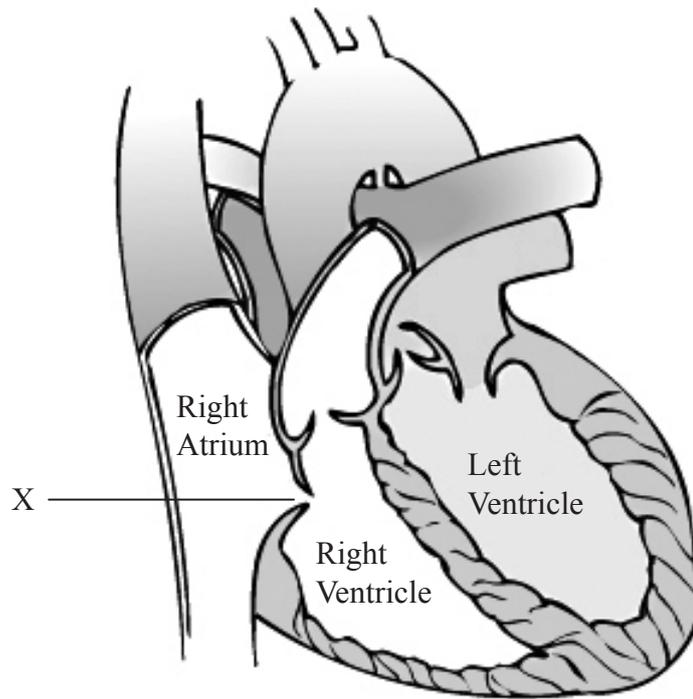D.   Insertion

3. What is the name of the skeletal muscle indicated by label X in the diagram below?

[Source: http://saveyourself.ca]

    A.   Rectus femoris

    B.   Achilles

    C.   Tibialis anterior

    D.   Soleus

4. What is vital capacity?

    A.   The volume of air in the lungs after maximum inhalation

    B.   The volume of air inhaled and exhaled in any one breath

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

    D.   Additional inspired air over and above tidal volume

5. Which heart valve is indicated by label X in the diagram below?

[Source: http://oneheartcareteam.org/HeartValveDisease.17779/]

A. Bicuspid

B. Tricuspid

C. Aortic

D. Pulmonary

6. Which combination describes the cardiovascular adaptations from an endurance exercise training programme?

A.	increased stroke volume	increased capillarization	increased blood pressure
B.	increased arterio-venous oxygen difference	increased cardiac output	increased blood pressure
C.	lower resting heart rate	increased capillarization	increased left ventricular volume
D.	lower resting heart rate	increased arterio-venous oxygen difference	increased body temperature

7. What is **one** function of platelets?

    A. Deliver oxygen

    B. Fight infection

    C. Blood clotting

    D. Antibody storage

8. What can cause low pH levels in the blood during aerobic exercise?

    A. Increased carbon dioxide content

    B. Increased hemoglobin content

    C. Increased oxygen content

    D. Increased phosphocreatine

9. What is the function of the conducting airways?

    A. Cool and moisten the air

    B. High resistance for air flow

    C. Warm and moisten the air

    D. Gaseous exchange

Turn over

10. Which of the following are the major sites of triglyceride storage?

      I.   Adipose tissue

      II.   Liver

      III. Skeletal muscle

  A.   I and II only

  B.   I and III only

  C.   II and III only
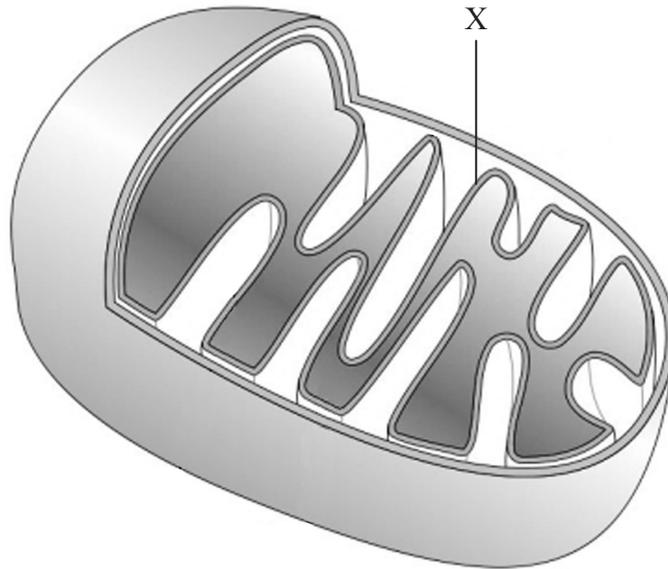
  D.   I, II and III

11. Which is an example of unsaturated fat?

  A.   Coconut oil

  B.   Full-fat dairy products

  C.   Canola oil

  D.   Meat products

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

  A.   C, H, O and N

  B.   C, H and O (1:2:1 ratio)

  C.   Glycerol and three fatty acids

  D.   H, N and O

13. Which mitochondrial structure is identified by label X in the diagram below?
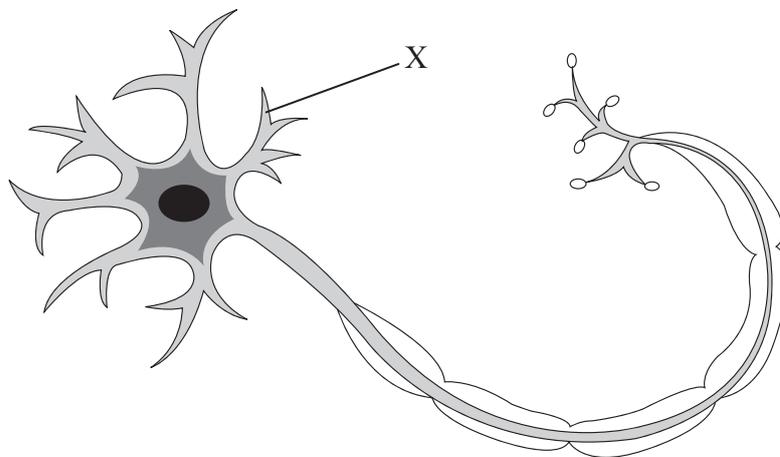

[Source: http://www.sciencegeek.net/Biology/review/U2Review.htm]

A.   Inner matrix

B.   Cristae

C.   Outer membrane

D.   Inner membrane

14. What term is used to describe the breakdown of glucose to pyruvate in the absence of oxygen?

A.   Aerobic glycolysis

B.   Glycogenesis

C.   Anaerobic glycolysis

D.   Glycogenolysis

15. What process occurs in the cytoplasm of a muscle cell?

    A.   Anaerobic glycolysis

    B.   Aerobic glycolysis

    C.   Krebs cycle

    D.   Electron transport chain

16. What structure is indicated by label X in the diagram below?

X

[Source: adapted from http://www.bbc.co.uk/schools/gcsebitesize/science/ocr_gateway_pre_2011/
ourselves/3_keeping_in_touch5.shtml]

    A.   Cell body

    B.   Axon

    C.   Dendrite

    D.   Motor end plate

17. Which of the following is a vector?

  A.   Speed

  B.   Distance

  C.   Displacement

  D.   Time

18. Which describes the relationship between moment of inertia, angular momentum and angular velocity?

  A.   angular momentum = moment of inertia × angular velocity

  B.   angular momentum = moment of inertia + angular velocity

  C.   angular momentum = moment of inertia − angular velocity

  D.   angular momentum = moment of inertia ÷ angular velocity

19. Which of the following factors affect the projectile motion of a shot put at release?

  I.   Speed of release
  II.   Height of release
  III. Angle of release

  A.   I and II only

  B.   I and III only

  C.   II and III only

  D.   I, II and III

20. What type of muscle contraction involves no change in the muscle length?

    A.   Isokinetic

    B.   Isometric

    C.   Concentric

    D.   Eccentric

21. How is the term *skill* best defined?

    A.   The consistent production of goal-oriented movements

    B.   An inconsistent performance over time

    C.   The influence of having previously performed a task

    D.   A group of aptitudes useful for a specific activity

22. Which term is defined by a "way of doing"?

    A.   Ability

    B.   Efficiency

    C.   Technique

    D.   Schema

23. Which of the following are types of skill?

A.	cognitive	proficiency	perceptual motor
B.	cognitive	perceptual	perceptual motor
C.	goal-directed	proficiency	perceptual
D.	goal-directed	perceptual	perceptual motor

24. What are the features of Welford's model of information processing?

A. sense organs, perception, kinetics

B. sense organs, perception, duration

C. sense organs, perception, overlearning

D. sense organs, perception, feedback

25. How is *learning* best defined?

A. A temporary change occurring over time

B. A pattern of actions carried out to satisfy an objective

C. The use of large muscles to achieve a goal

D. A relatively permanent change in performance

26. What is the coefficient of variation?

A. The ratio of the standard deviation to the mean, expressed as a percentage

B. The sum of the values divided by the number of values

C. The variation that exists from the mean or expected value

D. Any of a broad class of statistical relationships involving dependence

27. What percentage represents values within ±1 standard deviation for normally distributed data?

A. 95 %

B. 75 %

C. 68 %

D. 48 %

28. How is the Karvonen method best described?

    A.   A rating of perceived exertion

    B.   A technique for determining oxygen uptake

    C.   An overload technique

    D.   A way of monitoring exercise intensity

29. Which is a test to measure body composition?

    A.   Flexed arm hang

    B.   Hand grip dynamometer

    C.   Cooper's 12 Minute Run

    D.   Anthropometry

30. What is an essential element of a general training programme?

    A.   Interval training

    B.   Fartlek training

    C.   Stretching activities

    D.   Isometric contractions