VTCT - UV30536 Anatomy and physiology for exercise and health
Single unit assessment
Multiple choice question paper (Mock paper) Time: Up to: 2 hours

PLEASE COMPLETE THE FOLLOWING BOXES IN BLACK OR BLUE INK.
USE BLOCK CAPITALS. DO NOT USE PENCIL.

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PLEASE READ THE TEXT BELOW VERY CAREFULLY BEFORE ATTEMPTING ANY OF THE ASSESSMENT

You will need no other materials

Instructions to learners
- You must write only in blue or black ink.
- Answer all questions by marking an X in the appropriate box.
- At the end of the test this paper must be handed in to the supervisor/invigilator.
- Do not open this paper until told to do so by the supervisor/invigilator.

Advice to learners
- Read each question carefully and answer as many questions as you can.
- Questions may be attempted in any order.

Internal Verification YES / NO

| Internal verifier |  |  |  |  |
| Date and Comments |  |  |  |  |

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Total
1. In which plane of movement does rotation of the spine occur?
   A. Frontal
   B. Sagittal
   C. Lateral
   D. Transverse

2. Which joint actions occur in the downward phase of a wide grip lat pull down?
   Elbow
   A. flexion and shoulder adduction
   B. extension and shoulder flexion
   C. extension and shoulder abduction
   D. flexion and shoulder extension

3. A pronated grip places the hands in which position? Palms
   A. facing in
   B. facing out
   C. facing up
   D. facing down

4. What type of joint occurs between the humerus and ulna?
   A. Cartilaginous
   B. Hinge
   C. Condyloid
   D. Gliding
5. Which of the following body types is most likely to excel at distance running?

A. Endomorph  
B. Ectomorph  
C. Mesomorph  
D. Somatotype

6. Which of the following can lead to reduced bone density?

A. Low adrenaline (epinephrine) level  
B. High testosterone level  
C. Low oestrogen level  
D. High level of fat in diet

7. Which of the following describes kyphosis? An exaggerated curve in the

A. lumbar spine  
B. sacral spine  
C. thoracic spine  
D. cervical spine

8. Why is the position of the acetabulum within the pelvis important to the function of the hip joint? It makes the hip

A. more reliant on surrounding ligaments for stability  
B. very stable to help support body weight  
C. very mobile but vulnerable to dislocation  
D. more reliant on surrounding muscles for stability
9 What movement is possible at the hinge joint between the tibia and the talus bone?

A Dorsiflexion  
B Lateral extension  
C Inversion  
D Eversion

10 Which of the following joints move in all three of the anatomical planes?

A Hip  
B Elbow  
C Ankle  
D Wrist

11 In which plane of movement does hip flexion occur?

A Frontal  
B Sagittal  
C Lateral  
D Transverse

12 What type of structure is the symphysis pubis?

A Fascial sheath  
B Organ  
C Tendon  
D Joint
13 What type of joint is the acromio-clavicular joint?

A  Ball and socket  
B  Cartilaginous  
C  Gliding  
D  Hinge

14 How does the glenoid cavity affect function of the shoulder joint? It makes the shoulder

A  less reliant on surrounding muscles for stability  
B  very mobile but vulnerable to dislocation  
C  less reliant on surrounding ligaments for stability  
D  very effective at supporting body weight

15 Which of the following describes a motor unit? A

A  group of muscles working together to create movement  
B  sensory neuron that detects muscle movement  
C  motor neuron that transmits information to the central nervous system  
D  motor neuron and all of the fibres to which it connects

16 Which of the following is a function of the stretch (myotatic) reflex? It

A  prevents a muscle being lengthened too quickly  
B  allows a muscle to be lengthened quickly  
C  relaxes a muscle that is placed under too much tension  
D  decreases tension in a muscle being stretched
17. What type of contraction occurs in the quadriceps when performing the lowering phase of a squat?
   
   A. Eccentric  
   B. Isokinetic  
   C. Concentric  
   D. Isometric  

18. Which of the following muscles retracts the scapulae?
   
   A. Rhomboids  
   B. Deltoids  
   C. Erector spinae  
   D. Pectoralis major  

19. Which of the following muscles extends and adducts the shoulder?
   
   A. Latissimus dorsi  
   B. Trapezius  
   C. Pectoralis minor  
   D. Deltoid  

20. Which one of the following muscles is part of the quadriceps group
   
   A. Supraspinatus  
   B. Semitendinosus  
   C. Rectus femoris  
   D. Gluteus minimus
21 Which of the following muscles extends and externally (laterally) rotates the hip?

A   Vastus lateralis  
B   Iliopsoas  
C   Gluteus maximus  
D   Rectus femoris

22 What muscles make up the ‘rotator cuff’? Infraspinatus, 

A   serratus anterior, semimembranosis, suprasinatus  
B   supraspinatus, teres major, multifidus  
C   supraspinatus, subscapularis, teres minor  
D   subscapularis, multifidus, serratus anterior

23 Which long-term physiological adaptation will occur as a direct result of long-term aerobic training? Increased

A   resting heart rate  
B   blood pressure  
C   number of fast twitch muscle fibres  
D   capillarisation

24 Which muscle crosses only one joint?

A   Gastrocnemius  
B   Rectus femoris  
C   Gluteus minimus  
D   Semitendinosus
25 What is the name of the irregular collagen sheath that surrounds each individual muscle fibre?

A Perimysium  
B Epimysium  
C Fascicle  
D Endomysium

26 With which type of muscular contraction is delayed onset of muscular soreness (DOMS) most frequently associated?

A Isometric  
B Isotonic  
C Eccentric  
D Concentric

27 Which of the following are characteristics of fast twitch muscle fibres? They have a

A low firing threshold and red appearance  
B low firing threshold and white appearance  
C high firing threshold and red appearance  
D high firing threshold and white appearance

28 What muscle contraction occurs in the biceps brachii during the upward phase of the bicep curl?

A Eccentric  
B Concentric  
C Isometric  
D Isokinetic
29. To where does the left ventricle pump blood?

- A. Muscles
- B. Right ventricle
- C. Left atrium
- D. Lungs

30. Which of the following is a characteristic of all arteries? They

- A. transport blood towards the heart
- B. transport blood under low pressure
- C. have non-return valves
- D. have thick muscular walls

31. Where does the left atrium collect from?

- A. Left ventricle
- B. Right atrium
- C. Muscles
- D. Lungs

32. Which of the following is a characteristic of all veins? They

- A. transport blood under low pressure
- B. carry blood away from the heart
- C. have thick muscular walls
- D. transport oxygenated blood
33 Which muscles are actively involved in inspiration? Diaphragm and

A external obliques
B latissimus dorsi
C external intercostals
D transversus abdominus

34 What is the formula for calculating cardiac output? Cardiac output = stroke volume x

A systolic blood pressure
B heart rate
C myocardial mass
D contractility

35 What is the function of the bicuspid (mitral) valve? It prevents backflow of blood from the

A right ventricle to the right atrium
B right atrium to the pulmonary arteries
C left ventricle to the left atrium
D left atrium to the pulmonary veins

36 What is meant by the term ‘blood pressure’? The

A rate at which the heart is beating
B amount of blood contained in the veins
C speed of blood flowing through the circulatory system
D force exerted by blood pushing against the artery walls
37 How is stroke volume described? The volume of blood

A expelled from the ventricles in one minute
B expelled from the ventricles in one beat
C in the heart after any one contraction
D in the heart during any one contraction

38 What does the term ‘myocardial ischemia’ mean? Inadequate

A contractility from the myocardium
B nerve supply to the myocardium
C stroke volume from the myocardium
D blood supply to the myocardium

39 Which of the following factors reduces the oxygen carrying capacity of the blood?

A Anaemia
B Longer duration of diastole
C Hypertension
D Wider coronary arteries

40 What happens to the blood pressure during a moderate pace cardiovascular exercise session? Systolic pressure

A increases. Diastolic pressure remains approximately the same
B and diastolic pressure increase at the same time
C remains approximately the same. Diastolic pressure increases
D and diastolic pressure both remain approximately the same
41 Which of the following does the somatic branch of the nervous system control?

A Voluntary (skeletal) muscle  
B Involuntary (smooth) muscle  
C Heart rate  
D Breathing rate

42 What effect does testosterone have on the body? It

A decreases bone density  
B decreases cardiovascular fitness  
C increases the storage of body fat  
D increases growth of lean tissue

43 Which of the following would cause the body to release insulin into the blood?

A Performing a long, intense exercise session  
B Being anxious, immediately before a sporting competition  
C Eating nothing for several hours  
D Eating carbohydrates of high glycemic index

44 Which of the following would increase heart rate?

A Parasympathetic action of the autonomic nervous system  
B Parasympathetic action of the somatic nervous system  
C Sympathetic action of the autonomic nervous system  
D Sympathetic action of the somatic nervous system
45. Which of the following methods of flexibility training includes an isometric contraction of the targeted muscle?

A. Dynamic  
B. Passive  
C. Balistic  
D. PNF

46. Which hormone is responsible for increasing blood glucose levels?

A. Glucagon  
B. Insulin  
C. Glycogen  
D. Thyroxine

47. What effect does adrenaline (epinephrine) have on fat in the body? It

A. promotes the storage of fats in the liver  
B. mobilises fats from adipose tissue to raise blood glucose levels  
C. speeds up conversion of glucose to fats in the blood  
D. converts fats into creatine phosphate in the mitochondria

48. Which adaptation can result from regular muscular endurance training?

A. Decreased muscle mass (atrophy)  
B. Decreased number of red and white blood cells  
C. Increased size of the right ventricle  
D. Increased efficiency of slow-twitch muscle fibres
49. The endocrine system consists of glands which produce

A. hormones
B. sebum
C. pancreatic juice
D. bile

50. The basic principles of the endocrine system are to produce chemicals called

A. enzymes and excrete them directly into the digestive system where they are carried to their target organs
B. hormones and excrete them directly into the respiratory system where they are carried to their target organs
C. enzymes and secrete them directly into the urinary system where they are carried to their target organs
D. hormones and secrete them directly into the bloodstream where they are carried to their target organs

51. Which of the following structures make up the Central Nervous System?

A. Brain and spinal cord
B. Vertebrae and pelvis
C. Legs and arms
D. Skin and hair

52. Nerve cells are known as

A. leucocytes
B. erythrocytes
C. neurones
D. platelets
53. Efferent neurones carry motor nerve impulses

A. to the Central Nervous System (CNS) from muscles and glands
B. from the Central Nervous System (CNS) to muscles and glands
C. from skin, organs, muscles and joints to the Central Nervous System (CNS)
D. to the Central Nervous System (CNS) from skin, organs, muscles and joints

54. How many vertebral bones form the thoracic section of the spine?

A. 5
B. 7
C. 12
D. 10

55. The area where the nerve supply enters a muscle and stimulates an action is known as

A. myelin sheath
B. sensory nerve
C. motor point
D. dura mater

End of Test