



**Applied Anatomy and Physiology for Exercise,
Health and Fitness**

Level 3

F/615/4012

MOCK Paper 1

There are 40 questions within this paper.

To achieve a pass you will need to score 28 out of 40 marks.

All questions are multiple choice and there is only ONE correct answer.

To record your answers to each question please follow the instructions on your answer sheet.

You may use blank sheets of paper for notes and calculations if required.

Please DO NOT write on this paper.

Time Allowed - 90 minutes.

For each of the following questions choose one correct answer from A to D

- 1. Movements in the frontal plane of motion occur around which axis?**
 - A Medial-lateral
 - B Anterior-posterior
 - C Longitudinal
 - D Superior

- 2. For approximately how long can the creatine phosphate system consistently provide energy?**
 - A Up to 10 seconds
 - B 20-30 seconds
 - C 60-180 seconds
 - D Over 3 minutes

- 3. What structures involved in the sliding filament theory form the central myofilament that draws the outer myofilaments together during a contraction?**
 - A Myosin
 - B Actin
 - C Sarcomere
 - D Fascicle

- 4. Which adductor muscle inserts onto the tibia and as such is the only one to assist in knee flexion?**
 - A Gracilis
 - B Pectineus
 - C Adductor brevis
 - D Adductor magnus

- 5. What transmits electrical messages and initiates muscle contractions?**
 - A Motor end plate
 - B Synaptic end bulb
 - C Sympathetic units
 - D Motor units

For each of the following questions choose one correct answer from A to D

6. **Weakness in which muscle can cause knee pain by creating abnormal pull on the patella?**
A Gastrocnemius
B Vastus medialis
C Adductor magnus
D Gluteus minimus
7. **What is the term given to the rule which states that all muscle fibres in a motor unit contract together or none do?**
A The all or none law
B The sliding filament theory
C The size principle
D The excitatory response
8. **Which node is the heart's pacemaker?**
A Atrioventricular
B Semilunar
C Aortic
D Sinoatrial
9. **Which type of muscle does not receive an action potential during the process of reciprocal inhibition, so it remains relaxed?**
A Agonist
B Fixator
C Synergist
D Antagonist
10. **What would improperly loading joints by performing exercises with poor technique increase the risk of?**
A Osteoarthritis
B Osteoporosis
C Atherosclerosis
D Hyperglycaemia

For each of the following questions choose one correct answer from A to D

11. **Increased intake of which hormone to enhance athletic performance can result in the development of male characteristics in women?**
- A Oestrogen
 - B Progesterone
 - C Testosterone
 - D Relaxin
12. **What happens in an antagonist muscle when the stretch reflex is initiated?**
- A The muscle contracts and lengthens
 - B The muscle contracts and shortens
 - C The muscle relaxes and lengthens
 - D The muscle relaxes and shortens
13. **When cardiac output increases in line with exercise demands, what takes place to manage total peripheral resistance and avoid a dangerous increase in blood pressure?**
- A Vasoconstriction
 - B Vasodilation
 - C Reduced stroke volume
 - D Reduced heart rate
14. **What would be an effect of performing compound resistance exercises on the neuromuscular system?**
- A Improved isometric strength
 - B Improved intermuscular coordination
 - C Improved intramuscular coordination
 - D Improved isokinetic strength
15. **Which posture can limit the ability of the rib cage to lift and expand during inspiration?**
- A Upper crossed syndrome
 - B Hyperlordosis
 - C Hypolordosis
 - D Lower crossed syndrome

For each of the following questions choose one correct answer from A to D

16. What role do the longissimus, spinalis and iliocostalis play during a standing reverse flye?
- A Agonist
 - B Antagonist
 - C Synergist
 - D Fixator
17. What role do the golgi tendon organs play in the inverse stretch reflex?
- A Sense muscle length
 - B Sense muscle tension
 - C Initiate muscle contraction
 - D Initiate muscle relaxation
18. Which type of training would adapt type 2a fibres so that they behaved like type 2b?
- A Long slow duration
 - B Heavy weight training
 - C Muscular endurance
 - D Aerobic intervals
19. Where does the latissimus dorsi insert?
- A Posterior humerus
 - B Superior scapula
 - C Inferior scapula
 - D Anterior humerus
20. Through which plane does spinal rotation move?
- A Sagittal
 - B Frontal
 - C Transverse
 - D Coronal

For each of the following questions choose one correct answer from A to D

21. **What movement is possible at the joint formed by the clavicle and scapula?**
- A Supination
 - B Horizontal flexion
 - C Lateral extension
 - D Depression
22. **What is a blood pressure reading of 181/111mmHg categorised as?**
- A Normal
 - B Stage 1 hypertension
 - C Stage 2 hypertension
 - D Stage 3 hypertension
23. **Which type of exercise programme, if completed regularly, would have a normalising effect on blood pressure for those with mild or moderate hypertension?**
- A An isometric stabilisation programme
 - B A heavy giant sets programme
 - C A muscular endurance circuit programme
 - D A split hypertrophy programme
24. **Which muscle would be over-trained if a client started to show signs of a flat back?**
- A Erector spinae
 - B Pectoralis major
 - C Latissimus dorsi
 - D Rectus abdominis
25. **Which gland releases thyroxine and calcitonin?**
- A Thyroid
 - B Adrenal
 - C Pancreas
 - D Ovaries

For each of the following questions choose one correct answer from A to D

26. What are the two main components of tendons and ligaments that give them their strength and extensibility?

- A Collagen and elastin
- B Actin and myosin
- C Adenosine and creatine
- D Insulin and glucagon

27. What is the function of the liver in digestion?

- A Moistening food
- B Producing bile
- C Killing bacteria
- D Absorbing nutrients

28. What condition describes plaque build-up and loss of elasticity that contribute towards artery narrowing and eventual blockage?

- A Haemophilia
- B Thrombus
- C Atherosclerosis
- D Hypertension

29. Which of the following types of exercise is likely to result in a significant short-term increase in diastolic blood pressure?

- A Isometric exercises
- B Mobility exercises
- C Flexibility exercises
- D Endurance exercises

30. Which muscle fibres are best at working explosively?

- A Type 2b
- B Type 1b
- C Type 2a
- D Type 1a

For each of the following questions choose one correct answer from A to D

- 31. Into which system are hormones released for distribution around the body?**
- A The endocrine system
 - B The lymphatic system
 - C The circulatory system
 - D The digestive system
- 32. Use of which energy system produces the by-products of water and carbon dioxide?**
- A Aerobic
 - B Glycolytic
 - C Lactate
 - D Creatine phosphate
- 33. What is the function of the bicuspid valve?**
- A Prevent backflow of blood into the right atrium
 - B Prevent backflow of blood into the left atrium
 - C Prevent backflow of blood into the left ventricle
 - D Prevent backflow of blood into the right ventricle
- 34. What is the function of the synaptic end bulbs?**
- A To release neurotransmitters
 - B To speed up action potential transmission
 - C To regulate cell activity
 - D To carry incoming action potentials
- 35. How can diets that severely restrict calorie intake affect the digestive system?**
- A By increasing the risk of hyperglycaemia
 - B By increasing the risk of constipation
 - C By increasing the risk of hypotension
 - D By increasing the risk of indigestion

For each of the following questions choose one correct answer from A to D

36. What might be a strategy to prevent the occurrence of delayed onset muscle soreness?

- A Introduce unfamiliar exercises in large amounts
- B Apply ice before an exercise session
- C Introduce unfamiliar exercises gradually
- D Consume additional protein before an exercise session

37. Where are interneurons found?

- A Central nervous system
- B Autonomic nervous system
- C Parasympathetic nervous system
- D Somatic nervous system

38. Which enzyme in the stomach breaks down protein?

- A Amylase
- B Pepsin
- C Trypsin
- D Lipase

39. Which joint would allow approximately 180° of abduction?

- A Hip
- B Shoulder
- C Wrist
- D Ankle

40. Where does the blood enter the heart after it has passed through the systemic blood vessels?

- A Right atrium
- B Right ventricle
- C Left atrium
- D Left ventricle