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**MULTIPLE CHOICE  
QUESTION PAPER**



<p><b>Paper number</b> <b>APEH 3.02</b> Please insert this reference number in the appropriate boxes on your candidate answer sheet</p>	<p><b>Time allocation</b> 60 minutes</p>
<p><b>Title</b></p> <p style="text-align: center;"><b>MOCK PAPER Level 3 Anatomy and Physiology for Exercise and Health</b></p> <p style="text-align: center;"><b>Unit Reference Number: A/600/9051</b></p>	
<p><b>Special Instructions</b></p> <p>This theory paper comprises questions that are indicative of the Level 3 Anatomy and Physiology for Exercise and Health unit.</p> <p>All questions are multiple-choice.</p> <p>Answers should be recorded as either a, b, c or d.</p> <p>Calculators are permitted.</p> <p>This theory paper has 40 marks (each question is worth 1 mark). A <b>minimum of 28 marks overall (70%)</b> is required in order to pass.</p> <p><b>Important: Please do not write on this paper.</b></p> <p style="text-align: center;"><b>THIS PAPER MUST NOT BE REMOVED FROM THE EXAM ROOM</b></p>	

**Q1****What is the function of the aortic valve?**

- a. To prevent the back flow of blood from the aorta into the left atrium
- b. To prevent the back flow of blood from the aorta into the left ventricle
- c. To ensure the back flow of blood from the aorta into the left ventricle
- d. To ensure the back flow of blood from the aorta into the left atrium

**Q2****Which area of the body is supplied with blood via coronary circulation?**

- a. The heart
- b. The brain
- c. The lungs
- d. To liver

**Q3****Which of the following will increase as a result of arteriosclerosis?**

- a. Elasticity of blood vessels
- b. Cardiac output
- c. Number of mitochondria
- d. Systolic blood pressure

**Q4****Which of the following is mostly likely to occur if the breath is held whilst exercising?**

- a. Hypertrophy
- b. Valsalva effect
- c. Increased flexibility
- d. Decreased lactic acid production

**Q5**

**Which of the following is a benefit which results from regular endurance/aerobic training?**

- a. Increased blood volume
- b. Increased lactic acid production
- c. Increased creatine phosphate storage
- d. Delayed onset of muscle soreness (DOMS)

**Q6**

**What is a myofibril?**

- a. A protein which enables a muscle to contract
- b. A neurotransmitter which initiates muscular contractions
- c. The contractile part (unit) of a muscle fibre
- d. The connective tissue which surrounds each muscle fibre

**Q7**

**What is the name of the thicker of the two protein filaments involved in muscular contraction?**

- a. Actin
- b. Collagen
- c. Myosin
- d. Keratin

**Q8**

**When a myosin head attaches to an actin filament the resulting connection is known as a**

- a. cross-bridge
- b. synapse
- c. junction
- d. collagen fibre

**Q9****Which of the following muscles attaches onto both the scapula and the radius?**

- a. Trapezius
- b. Biceps brachii
- c. Levator scapula
- d. Pectoralis major

**Q10****Onto which 2 bones does the sartorius muscle attach?**

- a. Ischium and femur
- b. Ischium and tibia
- c. Ilium and femur
- d. Ilium and tibia

**Q11****When performing side lying leg abduction which of the following muscles is the fixator?**

- a. Tensor fascia latae
- b. Quadratus lumborum
- c. Gluteus maximus
- d. Gluteus minimus

**Q12****Through which anatomical plane does the leg move when stepping forward?**

- a. Frontal
- b. Transverse
- c. Coronal
- d. Sagittal

**Q13****Which of the following muscles contributes to extension of the vertebral column?**

- a. Multifidus
- b. Pectineus
- c. Rectus abdominis
- d. Piriformis

**Q14****Why does the shoulder joint carry a higher risk of injury than the hip?**

- a. The acromium is not present in many individuals
- b. The humerus has a poorer blood supply than the femur
- c. The shoulder joint is only stabilised by ligaments
- d. The glenoid cavity is much shallower than the acetabulum

**Q15****What movement occurs at the ankle when standing on tip-toe?**

- a. Dorsiflexion
- b. Plantarflexion
- c. Inversion
- d. Eversion

**Q16****How many bones form one half of the pelvis?**

- a. 1
- b. 2
- c. 3
- d. 4

**Q17****What is the thoraco-lumbar fascia?**

- a. A sheet of ligamentous tissue which aids movement of the spine
- b. A sheet of contractile tissue which helps stabilise the spine
- c. A sheet of ligamentous tissue which helps stabilise the spine
- d. A sheet of contractile tissue which aids movement of the spine

**Q18****If the spine is insufficiently stabilised which of the following is likely to occur when extending the hip?**

- a. Erector spinae adopts the role of a prime mover
- b. Gluteus maximus adopts the role of a fixator
- c. Pelvic floor muscles adopt the role of antagonists
- d. Latissimus dorsi adopts the role of a synergist

**Q19****Which is the most likely effect that abdominal adiposity will have on movement efficiency?**

- a. Increased hip flexion
- b. Decreased hip flexion
- c. Increased hip extension
- d. Decreased hip extension

**Q20****Which of the following postural deviations carries the greatest risk of causing excessive pressure on the intervertebral discs?**

- a. Excessive kyphosis
- b. Scoliosis
- c. Swayback
- d. Excessive lordosis

**Q21****Which of the following statements about core stability training is correct?**

- a. Abdominal bracing techniques will increase intra-abdominal pressure.
- b. Targeted rectus abdominis exercises are important in the prevention and re-occurrence of back pain in the general population.
- c. Core stability exercises are beneficial for all clients with spinal or pelvic pain conditions.
- d. A helpful cue for effective core stability training is, 'engage the core by sucking/pulling in the stomach'.

**Q22****Which of the following methods of stretching requires an isometric contraction applied against a resistance?**

- a. Proprioceptive neuromuscular facilitation (PNF)
- b. Active
- c. Dynamic
- d. Ballistic

**Q23****Which division of the nervous system is responsible for the interpretation of any messages received via nerves?**

- a. Central nervous system
- b. Peripheral nervous system
- c. Autonomic nervous system
- d. Somatic nervous system

**Q24****Which of the following would slow down breathing 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

**Q25****Which one of the following cellular structures allows waste products to enter/leave the cell?**

- a. Dendrite
- b. Myelin Sheath
- c. Nucleus
- d. Node of Ranvier

**Q26****A synapse is**

- a. a structure that allows a neuron to pass an electrical or chemical signal to another cell
- b. a chemical that enables the transmission of signals to pass from one neuron to another
- c. a structure that insulates a neuron from the electrical or chemical signals of other cells
- d. a chemical that prevents the transmission of signals from one neuron to another

**Q27****What is the role of a motor unit?**

- a. To determine the strength of contraction required
- b. To activate (innervate) all the muscle fibres to which it is attached
- c. To limit the number of muscle fibres available so as to minimise the risk of injury
- d. To ensure that all the muscle fibres in a muscle work together (co-ordination)

**Q28**

**Which of the following is a key factor in determining the strength of a muscle contraction?**

- a. The number of motor units recruited
- b. The number of motor units inhibited
- c. The type of muscle fibres recruited
- d. The type of muscle fibres inhibited

**Q29**

**When the stretch reflex is activated in the quadriceps, the quadriceps**

- a. relax
- b. lengthen
- c. contract
- d. stretch

**Q30**

**A concentric contraction of which of the following muscle groups would utilise 'reciprocal inhibition' to help stretch the quadriceps?**

- a. Abductors
- b. Quadriceps
- c. Glutes
- d. Hamstrings

**Q31**

**Which of the following is a neuromuscular adaptation associated with resistance training?**

- a. Hypertrophy of motor units
- b. Increased number of motor units
- c. Improved synchronisation of motor units
- d. Hyperplasia of motor units

**Q32****Which of the following is a key benefit of improved neuromuscular co-ordination?**

- a. Accelerated weight loss
- b. An increase in VO<sub>2</sub> max
- c. Improved core strength
- d. Reduced risk of injury

**Q33****The level of blood glucose is lowered following a meal by the action of**

- a. glucagon
- b. adrenaline
- c. growth hormone
- d. insulin

**Q34****Which of the following is an endocrine gland?**

- a. Pituitary gland
- b. Salivary gland
- c. Sebaceous gland
- d. Lymph gland

**Q35****Which of the following glands is situated at the base of the brain?**

- a. Pancreas
- b. Pituitary
- c. Thyroid
- d. Adrenal

**Q36**

**Which hormones are responsible for regulating the stress response?**

- a. Growth hormones
- b. Corticosteroids
- c. Catecholamines
- d. Progesterones

**Q37**

**The phosphocreatine system is the main contributor of energy when performing**

- a. an exercise for muscular endurance
- b. acceleration sprints
- c. moderate cycling
- d. a long distance run

**Q38**

**What is the approximate blood lactate level, in mmol, at the anaerobic threshold?**

- a. 2
- b. 4
- c. 6
- d. 8

**Q39**

**Which of the following is an indication of a successful cardiovascular performance programme?**

- a. Onset of Blood Lactate Accumulation (OBLA) lowers
- b. Maximum Heart Rate (MHR) rises
- c. Maximum Heart Rate (MHR) lowers
- d. Onset of Blood Lactate Accumulation (OBLA) rises

**Q40**

**Which of the following describes 'glycolysis'?**

- a. The breakdown of protein into amino acids
- b. The breakdown of muscle into protein
- c. The breakdown of fat into fatty acids
- d. The breakdown of carbohydrate into pyruvic acid