Human Biology –General Year 12 2018

Task 3 – Unit 3

**Assessment Type:** Test

**Task Weighting :** 7.5% **Name : MARKING KEY Total: /42**

***MULTIPLE CHOICE SECTION [8 MARKS]***

1. ***A***
2. ***B***
3. ***D***
4. ***B***
5. ***B***
6. ***D***
7. ***A***
8. ***B***

***SHORT ANSWER SECTION [21 MARKS]***

1. The diagram below shows three types of muscle tissues labelled X, Y and Z

|  |  |
| --- | --- |
| **Description** | **Marks** |
| **Muscle X** | |
| Skeletal Muscle  Examples could include:   * Bicep * Tricep * Qudricep * Hamstring * Abdominals | 1 |
| **Muscle Y** | |
| Cardiac Muscle  Examples is heart | 1 |
| **Muscle Z** | |
| Smooth Muscle  Examples could include:   * Intestines * Liver * Stomach * Spleen * Arteries | 1 |
| **TOTAL** | **3** |

1. The diagram shows Sally lifting weights from below her hips to a position directly above her head:
2. Name the term to best describe her arm movements as she raises her arms above her head?

[1 Mark]

Abduction (1)

1. Below is a diagram of someone raising their forearm towards their shoulder. Label the following terms on the diagram: [2 Marks]



½ mark for each. Round down to 1 if they only get 3 labels.

1. Explain, using the movement shown in the diagram above, what is meant by the statement that “skeletal muscles are arranged in antagonistic pairs with the support of synergist muscles”?

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Defines antagonistic pairs: one muscle contracts while the other relaxes to bring about movement | 1 |
| Relates back to the bicep curl movement by stating that biceps are agonist and triceps are antagonist | 1 |
| Defines synergist function: supports the movement by contributing some of the force of contraction AND guiding the movement | 1 |
| **TOTAL** | **3** |

1. Using examples, explain the difference between muscle endurance and muscle strength

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Defines muscle endurance: how long a muscle fibre can contract for | 1 |
| Defines muscle strength: how much max force a muscle can contract with | 1 |
| Example movements for the two traits:   * Heavy-weight lifting vs going for a run * Any 2 acceptable examples | 1-2 |
| **TOTAL** | **4** |

1. Describe the difference between gross motor movements and fine motor movements.

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Gross motor movements are big movements that involve a lot of muscles | 1 |
| Fine-motor movements are small movements that involve being precise with muscles | 1 |
| **TOTAL** | **2** |

1. Explain why it is important for a baby to learn how to crawl before they learn how to walk.

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Description of new synapses.   * E.g. When a baby crawls, they develop new **synapses** in their brain for movement | 1 |
| Link between receptors for proprioception and fluid movements.   * E.g. These synapses combine information from **receptors** about **proprioception/**body’s position in space to make movement **fluid** | 1 |
| Links back to baby walking   * E.g. If a baby walks before crawling, their walking will be unbalanced/unco-ordinated | 1 |
| **TOTAL** | **3** |

1. Predict the impact of a low protein diet on the muscular system

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Muscles are made of protein/Actin and Myosin are proteins | 1 |
| Cannot build/repair muscles if not enough protein in diet | 1 |
| Specifically links to impact on muscular system:   * This would make muscles weak and movement impaired | 1 |
| **TOTAL** | **3** |

***EXTENDED ANSWER [13 Marks]***

1. Explain why the body does not contract all muscle fibres at the same time when balancing or holding a position for an extended period of time?

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Describes:   * Because the whole muscle would fatigue quicker | 1 |
| Links to balancing/holding a position:   * If all muscle fibres were contracting, then the person would not be able to balance/hold a position for very long. | 1 |
| **TOTAL** | **2** |

1. Identify the proteins labelled A and B in the diagram below.
2. A: **Myosin (1)**
3. B: **Actin (1)**
4. Explain how the muscular system and nervous system work together to bring about skeletal muscle contraction. Include what happens in a sarcomere.

|  |  |
| --- | --- |
| **Description** | **Marks** |
| The nervous system sends nerve impulses to the muscle fibre to contract/muscles are innervated/ nerves connect to muscles at neuromuscular junction and tell muscles when to contract | 1 |
| What happens at the sarcomere:   * After nerve impulse, myosin pulls actin closer (1) * This makes the whole sarcomere shorter, which in turn would shorten the whole muscle (1) | 1-2 |
| **TOTAL** | **3** |

1. When muscles fail, it can have disastrous effects on human health. Explain the cause, symptoms and treatment for two muscular dysfunctions. [6 Marks]

|  |  |
| --- | --- |
| **Description** | **Marks** |
| **2 of the following disorders. Must have at least one point from under each heading to get mark** | |
| **Muscular Dystrophy** | |
| Cause:   * Breakdown of skeletal muscle | 1 |
| Symptoms:   * Uncontrolled movement/muscle weakness/waddling gait/clumsiness | 1 |
| Treatment   * Steroid medication/light exercise | 1 |
| **Stroke** | |
| Cause:   * Death of neurons because of blood cut off | 1 |
| Symptoms:   * Inability to lift both arms/sudden confusion/sudden numbness/speech difficulty | 1 |
| Treatment:   * Rehabilitation to replace lost synapses/blood thinning medications | 1 |
| **Multiple Sclerosis** | |
| Cause:   * Body’s immune systems destroys fatty covering of nerve cells | 1 |
| Symptoms:   * Fatigue/pain/pins and needles/any reasonable symptom | 1 |
| Treatments:   * Immunosuppressants | 1 |
| **TOTAL** | **6** |