Answer Key

HUMAN BIOLOGICAL SCIENCE. YEAR 12. 2011.

Muscles, Bones and Joints.

|  |  |
| --- | --- |
| Question | Answer |
| 1 | D |
| 2 | B |
| 3 | C |
| 4 | A |
| 5 | B |
| 6 | D |
| 7 | A |
| 8 | B |
| 9 | A |
| 10 | A |

Short Answer Questions

1. Label the following diagram.

Cranium, scapula, humerus, ilium, radius, ulna, tibia, fibula, tarsals, metatarsals, rib, carpals, metacarpals, phalanges, sacrum, patella, vertebrae, mandible, femur and coccyx.

(10 marks)

1. Label the muscles on this diagram

Pectoralis major, deltoid, biceps, rectus abdominis, quadriceps, and trapezius,

(Marks 3)

1. Complete this table

|  |  |
| --- | --- |
| Word | Meaning |
| Muscle insertion | End of muscle attached to bone that moves during muscle contraction. |
| Muscle origin | End of muscle that does not move during muscle contraction |
| Belly of muscle | Middle part of muscle that shortens during contraction |

(3 marks)

1. Complete this table

|  |  |  |
| --- | --- | --- |
| Type of joint | Description | Example |
| Fibrous | Immovable joint | Between plates of skull |
| Cartilaginous | Allow slight movement | Intervertebral discs. |
| Synovial | Joints with a fluid filled cavity. Allow movement. | Hip or any other acceptable answer |

(6 marks)

1. Here is a diagram of a synovial joint. Label it and then complete the table that follows.
2. A= synovial membrane

B= synovial fluid(or cavity)

C= articulating cartilage

D= joint capsule

(2 Marks)

II.

|  |  |
| --- | --- |
| Structure | Function |
| A | Produces synovial fluid |
| B | Acts as a lubricant. Reduces friction |
| C | Reduces friction |
| D | Encloses and strengthens joint |

(4 marks)

1. Use the diagram of microscopic bone structure below to complete the empty boxes in the table below it.

|  |  |  |
| --- | --- | --- |
| Label number | Name of part or material | Function |
| 1 | Osteocytes in Lacunae | Mature bone cells that maintain bone tissue. |
| 2 | Calcium Phosphate matrix | Gives bone strength |
| 3 | Canaliculi | Allow exchange of materials between bone cells |
| 4 | Haversian Canal | Allows blood vessels to enter the bone, bringing oxygen and nutrients. |

( 5 Marks)

1. Briefly describe what is happening in the diagram below.

The ends of the myosin molecule(or myosin bridges) fold back(1 mark)

This caused the actin and myosin to slide over each other(1 mark)

The sarcomere becomes shorter.

As this happens throughout the muscle this causes the muscle as a whole to contract(1 mark)

Any 3 of these

1. Complete the table below.

|  |  |
| --- | --- |
| Type of synovial joint | Example |
| Ball and socket | Hip or shoulder |
| Hinge | Knee |
| Pivot | Between C1 and C2(or axis and atlas vertebrae)  elbow |
| Saddle | Thumb |

(4 marks)