**UNIT 4 HUMAN BIOLOGICAL SCIENCE**

**TEST 5 HOMININ EVOLUTION**

**MARKING KEY**

**Multiple Choice: /14**

**Short Answer: /31**

**Extended Answer: /10**

**TOTAL:\_\_\_\_\_\_\_\_\_\_/55**

**Section One: Multiple-choice 14 MARKS**

Select the best alternative from the answers given and mark your choice like this (a) (b) (c) (d)

|  |  |
| --- | --- |
| 1. **(a)** (b) (c) (d)  2. (a) (b) (c) **(d)**  3. (a) (b) (c) **(d)**  4. **(a)** (b) (c) (d)  5. (a) **(b)** (c) (d)  6. (a) **(b)** (c) (d)  7. (a) (b) **(c)** (d) | 8. (a) **(b)** (c) (d)  9. (a) (b) **(c)** (d)  10. (a) (b) (c) **(d)**  11. **(a)** (b) (c) (d)  12. (a) **(b)** (c) (d)  13. (a) (b) (c) **(d)**  14. (a) (b) (c) **(d)** |

**Section Two: Short answer 31 MARKS**

**Question 1**

As hominins evolved their cranial capacity gradually increased. For each of the three functional areas of the cerebral cortex listed below, explain **one** advantage an increased brain size gave to early *Homo sapiens* to enable them to survive in their environment.

 (3 marks)

**Question 2**

The drawings below show different sets of tools found at different archaeological sites associated with different human evolutionary groups.



# Set 1 Set 2 Set 3 Set 4 Set 5 Set 6 Set 7

(a) Which set of tools is the oldest? Explain your choice.

**Set 1 [1] similar shape indicating no specialisation OR not much working of the surface**

**– all have unworked sections [1]**

(2 marks)

(b) What does Set 4 indicate about the uses of different tools?

**Greater specialisation of tools [1] OR Each tool had a particular purpose / specific purposes listed OR Tools were used for more tasks / greater variety of tools [1] OR Multiple materials used other than just stone [1]**

(2 marks)

(c) What trends in tool development are shown from Set 2 to Set 6?

**Finer workmanship / complexity [1] Variety of materials [1] / Cores and flakes used [1] / Larger number or variety of tools [1] / Other tools used to craft [1]**

(2 marks)

**Question 3**

Around 5-6 million years ago, environmental conditions changed in Africa. These changes are believed to have contributed to the appearance of the first hominin individuals.

1. Outline the environmental changes that occurred in Africa

Change in weather conditions due to the formation of the Himalayas

Cooler/ Drier climate/ Decrease in rainfall

Shift from dense forest to less trees/ Open grassland/ savannah

(3 marks)

1. Identify the important hominin characteristic that evolved as a result of these changes and explain 3 advantages this new characteristic provided for hominins in their new environment.

Bipedal locomotion (1mark) then, any 3 below

More energy efficient – allows more energy for sex

Hands free – carry food/tools/weapons/infants

Higher reach – access more food higher up

Improved cooling system - Decreased SA less heating up

Improved cooling – wind reaches upper body/ improved evaporative cooling

Increase range of vision – see predators from further away

Increased size – deters predators

(4 marks)

1. Describe five major anatomical adaptations of Hominins and explain why they are important.

|  |  |
| --- | --- |
| **Adaptation** | **Importance** |
| position of the foramen magnum beneath the skull | balance the skull on the spine  reduce work of neck muscles  have face upright and looking forward |
| S-shaped spinal curve | support weight of internal organs over the pelvis  acts like a spring to reduced impact of walking  allows for centre of gravity to pass through knee and foot |
| increased carrying angle of the femur at the knee | the knee is brought under the body to reduce swaying with each step  easier to transfer weight from one foot to another |
| wide short pelvis | prevent tilting when opposite foot is off the ground  support for internal organs  muscle attachment of leg muscles for efficient locomotion |
| feet arches | produces a spring action and acts as shock absorber when walking  distributes weight bearing more effectively |
| big toe aligned with other toes (not opposed) | bears impact of body weight, helps propel body forward |

(10 marks)

**Question 4**

Archaeologists excavating a site in the Dordogne region of France came across a complete fossilised footprint. Based on its characteristics, they thought it had been made by a species of hominin.

1. Describe **three** characteristics of the footprint that would indicate it had been made by a

species of hominin.  (3 marks)

1. On the basis of tools also found at the site, the archaeologists concluded the footprint belonged to *Homo neanderthalensis*. Describe **two** features of the tools that would provide support for the fossilised footprint belonging to *Homo neanderthalensis*.

 (2 marks)

**Section Three: Extended answer 10 MARKS**

The evolution of hominins can be related to certain cultural advances that improved their survival chances. Describe five cultural advances that have characterised hominin evolution, giving consideration to how these advances aided survival.

|  |  |
| --- | --- |
| **Culture that advanced (1)** | **Cultural advantage (1)** |
| **Construction and use of tools** | **More efficient hunters** |
| **Language** | **Important for communication (e.g. hunting and problem solving)** |
| **Making of clothes** | **Keeping warm in cold climates** |
| **Use of fire** | **Cooking food – more easily digestible (preventing disease. OR Protection from predators.** |
| **Shelters (manipulation of the environment)** | **Protection from the elements and predators.** |
| **Neolithic [agriculture] domestication of animals and plants** | **Food source more guaranteed, increasing chances of survival** |
| **Food gathering and sharing** | **Increase food availability, more efficient use of time** |

(10 marks)