Name -------------------------------------------------------------- index no. --------------------------------

Candidates sign --------------------------------------------------------- class --------------------------------

**231/1**

**BIOLOGY**

**PAPER ONE**

**Time: 2 hours**

**FORM 4**

Instructions too the candidates

* Write your name and index number in the spaces provided.
* Sign and write date of examination in the spaces provided above.
* Answer all the questions in this paper.

**FOR EXAMINERS USE ONLY**

|  |  |  |
| --- | --- | --- |
| Question | Maximum score | Candidates score |
| 1-34 | 80 |  |

1. I) Which type of a joint is found at the articulation of
2. Pelvic girdle and femur. (1 mark)

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1. Humerus and ulna (1 mark)

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1. Name the fluid found in the in between the joints above (1 mark)

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1. Name the structure which attaches the muscles to the bones (1 mark)

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1. Name the blood vessels that transports blood from
2. Heart to the lungs (3 marks)

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1. Liver to heart

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1. Small intestine to the liver

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1. What is the function of the cells in the cells retina of the human eye (2 marks)
2. Cones
3. Rods

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1. Name three types of chromosomal mutations. (3 marks)

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1. A) During which phase of meiosis does crossing over occur. (1 mark)

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B) How do identical and functional twins arise (4 marks)

1. Identical twins

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1. Fraternal twins

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1. Explain how tendrils of climbing plants coil around a support (3 marks)

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1. Name the spore producing structure in
2. Bryophytes. (2 marks)

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1. Pteridophytes. (2 marks)

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1. A) Account for the loss of dry weight of cotyledons in a germinating bean seed. (1 mark)

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B) State three effects of gibberellins on shoot of plants (3 marks)

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1. State the characteristics that can separate the following organisms into respective classes:, Tsetse fly and spider. (2 marks)

|  |  |
| --- | --- |
| Tsetse fly | Spider |
|  |  |
|  |  |

1. I) State the function of root hair in plants. (1 mark)

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II) State why the cell walls of root hairs are thin. (1 mark)

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III) State two benefits of transpiration in plants (2 marks)

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1. State the two functions of the cell organelle that contains chlorophyll in plants. (2 marks)

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1. Give any three functions of human skin. (1 mark)

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1. State two adaptations of the liver to its functions. (2 marks)

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1. State three functions of cervix in female mammals. (3 marks)

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1. State two preventive measures which would be taken to control hepatitis B. (2 marks)

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1. State two views held by the theory of organic evolution on the origin and nature of life (2 marks)

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1. Distinguish between tropisms and taxes (2 marks)

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1. Name the homeostatic functions carried by hypothalamus (1 mark)

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1. Why do guards cells lie in close contact with epidermal cells? (1 mark)

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1. Give a reason why mammalian lungs are closed in an airtight pleural membrane. (1 mark)

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1. State two adaptations of choroid to its function (2 marks)

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1. A) Define the term backcross as used in genetics (1 mark)

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B) i) Name the chromosome on which the gene that leads to turf of hairs in the ears is located. (1 mark)

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ii) Define disjunction type of chromosomal mutation. (1 mark)

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1. i) what do you understand by the cell specialization (1 mark)

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ii) Give the function of body tube in a light microscope (1 mark)

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1. State three advantages of fossil records. (3 marks)

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1. A) What is meant by vestigial structures?. (1 mark)

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B) A name two vestigial structure in man. (2 marks)

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1. State the function of
2. Seminiferous tubules (1 mark)
3. Oviduct (2 marks)

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1. Name three components of DNA molecule. (3 marks)

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1. State the changes that take place during inhalation in mammals in the following (2 marks)
2. Ribcage

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1. Diaphragm

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1. I) State the function of Pseudopodia in Amoeba. (2 marks)

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II) Name the type of cells in human body which shows a similar biological process as one shown by amoeba above. (2 marks)

1. A) State the meaning of HIV in the scientific field (1 mark)

B) Name three effective ways of preventing HIV transmission to un-infected person. (3 marks)

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1. Name three functions of cerebellum. (3 marks)

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