**NAME** ……..…….. **DATE** ……

**INDEX NO.** ……..……..…….…..…..… **SIGNATURE** ……..……..

**231/3**
**BIOLOGY**
**PAPER 3**
**(PRACTICAL)**
**TIME: 1¾ HOURS.**

# MAKINDU DISTRICT INTER – SECONDARY SCHOOLS EXAMINATION

*Kenya Certificate of Secondary Education*



**231/3**
**BIOLOGY**
**PAPER 3**
**(PRACTICAL)**
**JULY/AUGUST 2014**
**TIME: 1¾ HOURS.**

## INSTRUCTIONS TO CANDIDATES

- Answer **all** the questions.
- You are required to spend the first 15 minutes of the 1¾ hours allowed for the paper reading the whole paper carefully before commencing your work.
- Answers must be written in the spaces provided in the question paper.
- Additional pages must not be inserted.
- Candidates may be penalized for recording irrelevant information and for incorrect spellings.
- This paper consists of 5 printed pages. Candidates should check to ensure that all pages are printed as indicated and no questions are missing

## FOR EXAMINER'S USE ONLY

| Questions | Maximum score | Candidate's score |
|---|---|---|
| Question 1 | 12 | |
| Question 2 | 14 | |
| Question 3 | 14 | |
| **Total score** | **40** | |

1. You are provided with solution labeled Q, Benedict's solution, DCPIP reagent, dilute sodium hydroxide and 1% copper (II) sulphate; Using

a) 2ml in a test-tube in each case, test for the food substances in solution Q (10mks)

| Test | Procedure | Observation | Conclusion |
|---|---|---|---|
| Burette Test | (1mk) | (1mk) | (1mk) |
| DCPIP test | (1mk) | (1mk) | (1mk) |
| Benedicts test | (1mk) | (1mk) | (1mk) |

b) Name the deficiency disease in humans that would result from lack of nutrients contained in solution Q (1mark)

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c) In the study of evolution researchers have observed that vertebrate's animals have the type of structures shown below.

**SEE PHOTOGRAPHS ATTACHED**

i. Which theory of evolution do these structures support? (1mark)

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ii. On the diagrams identify the basic similarities observed. (2marks)

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iii. Explain clearly why this structure justify evolution in animals (3marks)

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2. The micrograph below shows stages in a type of cell-division that occurs in organisms.

**SEE PHOTOGRAPHS ATTACHED**

a) State the type of cell – division (1 mark)

……

……

b) Identify the stages indicated by letter. (4marks)

V

.....

X.

.....

Y

.....

Z

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c) Name the type of cells in which the above process occurs. (1mark)

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d) State two significance of this type of cell-division (2marks)

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e) From the micrograph, suggest with reason(s) whether the cell-division shown occurred in plants or animals (2marks)

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f) Name one cellular activities that occurs in stage labeled W (1mark)

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3. Below are drawing of various organisms. Examine them

**SEE PHOTOGRAPHS ATTACHED**

a) i ) Name the phylum to which B belongs (1mark)

.....

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(ii) Give three reasons for your answer in (a) (i) above (3marks)

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b) Name the class to which specimen B and E belong.

B

.....

E

.....

c) Give three differences between specimen B and E (3marks)

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d) Use the dichotomous key provided to identify the organism.

| | | | |
|---|---|---|---|
| 1. | a) | Jointed legs present..... | go to 2 |
| | b) | jointed legs absent..... | go to 7 |
| 2. | a) | Have 3 pairs of legs..... | go to 3 |
| | b) | Have more than 3 pairs of legs..... | go to 5 |
| 3. | a) | With wings..... | go to 4 |
| | b) | Without wings..... | Anoplura |
| 4. | a) | Have one pair of wings..... | Diptera |
| | b) | Have two pairs of wings..... | Hymenoptera |
| 5. | a) | Have four pairs of legs..... | Arachnida |
| | b) | Have more than 10 pairs of legs..... | go to 6 |
| 6. | a) | With one pair of legs per segment..... | Chilopoda |
| | b) | With two pairs of legs per body segment..... | Diplopoda |
| 7. | a) | With body enclosed in a shell..... | Mollusca |
| | b) | Body surface with spiny projections..... | Echnodermata. |

Identify steps followed to identify organism A, B, C, and E (5marks)

| Specimen | Steps followed | Identity |
|---|---|---|
| A | | |
| B | | |
| D | | |
| E | | |