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| Index Number: | // |
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| Candidate's signature: | |

Date:

231/1 BIOLOGY Paper 1 Oct./Nov. 2015 2 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL Kenya Certificate of Secondary Education BIOLOGY Paper 1 2 hours

Name:



Instructions to Candidates

- (a) Write your name and index number in the spaces provided above.
- (b) Sign and write the date of examination in the spaces provided above.
- (c) Answer all the questions in this question paper.
- (d) All answers must be written in the spaces provided.
- (e) This paper consists of 11 printed pages.
- (f) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
- (g) Candidates should answer the questions in English.

For Examiner's Use Only

| Question | Maximum | Candidate's |
|----------|---------|-------------|
| Number | Score | Score |
| 1 - 20 | 80 | |



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Turn over

| | | Answer all the questions in the spaces provided. | |
|-----|---------|--|-----------------------|
| 1 | (a) | What is meant by the term binomial nomenclature? | (1 mark) |
| | (b) | State two guidelines that should be followed when typing scientific names. | (2 marks) |
| 2 | | ng a lesson, students observed the structure of bat, cat and human forelimbs to de evolutionary relationship. | |
| | (a) | State the name given to the structure of the limbs observed by the students. | (1 mark) |
| | (b) | Name the type of evolution illustrated by the structure of the limbs observed. | (1 mark) |
| | (c) | What evidence of evolution is illustrated by the limbs? | (1 mark) |
| | (d) | State the significance of the type of evolution illustrated by the limbs. | (1 mark) |
| 3 | | ndividual is of blood group B positive. | |
| | (a) | Name the antigens in the individual's blood. | (2 marks) |
| | (b) | Give the reason why the individual cannot receive blood from a blood group | A donor. (2 marks) |
| | | Kenya Certificate of Secondary Education, 2015 231/1 02315140. | |
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| wor | the father is normal, what is the chance that their son will be colour blind? Sking. | |
|--------|--|--------------------------|
| | C C | (4 marks) |
| •••••• | | •••••• |
| ••••• | | ••••• |
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| | | •••••• |
| •••••• | | ••••• |
| •••••• | | •••••• |
| (a) | State two advantages of using a coverslip when preparing a specimen for under a light microscope. | observation (2 marks) |
| | | |
| •••••• | | |
| •••••• | | •••••• |
| (1) | ······ | |
| | How is the low power objective lens manipulated to focus a specimen for | |
| (b) | under a light microscope? | (2 marks) |
| | under a light microscope? | |

Kenya Certificate of Secondary Education, 2015 231/1 02315140

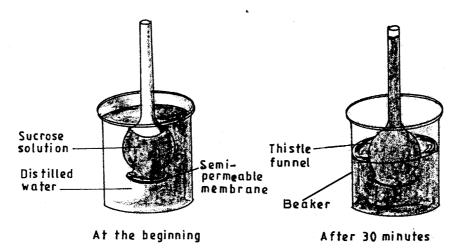
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Students set up an experiment as illustrated below.

6



(a) Name the physiological process that resulted in the observations made after 30 minutes.

| ••••• | | ••••• |
|---------|---|--------|
| ••••• | | |
| ••••• | | |
| ••••• | | |
| ••••• | | |
| ••••• | | |
| How | is a guard cell structurally adapted for gaseous exchange? | (4 mar |
| ••••• | | |
| | I | |
| (c) | Explain the observations made after 30 minutes. | (2 mar |
| (b) | State the importance of the physiological process investigated in plants. | (1 ma |
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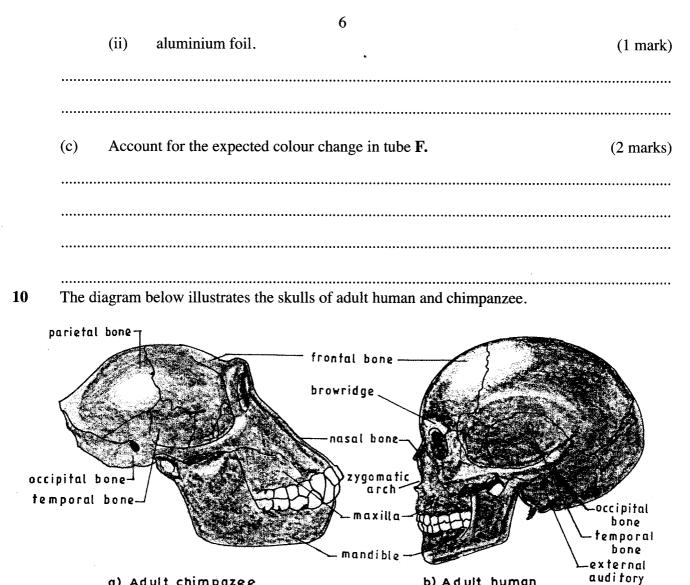
| (a) | | 5 | |
|----------------|--|--|----------------------|
| | Name | e the organism that: | |
| | (i) | causes malaria; | (1 mark |
| | (ii) | transmits malaria. | (1 mark |
| (b) | State | two control measures for malaria. | (2 marks |
| | liagram ints. Air — — tassium idroxide | below shows an experimental set up to investigate a cert Aluminium foil | Calcium hydroxide |
| 11 y | | Calcium hydroxide Potted plant | il y u lo x lue |
| (a) | State t | he aim of the experiment. | |
| (a) | ••••• | | (1 mark) |
| (a) | | | (1 mark) |
| (a) (b) | | he role of the following in the experiment: | (1 mark) |

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a) Adult chimpazee

b) Adult human

canal

(3 marks)

State one difference between the two skulls in the following structures: (a)

| | Structure | Chimpanzee Skull | Human Skull |
|-------|----------------|------------------|-------------|
| (i) | Parietal bones | | |
| (ii) | Mandible | | |
| (iii) | Browridge | | |

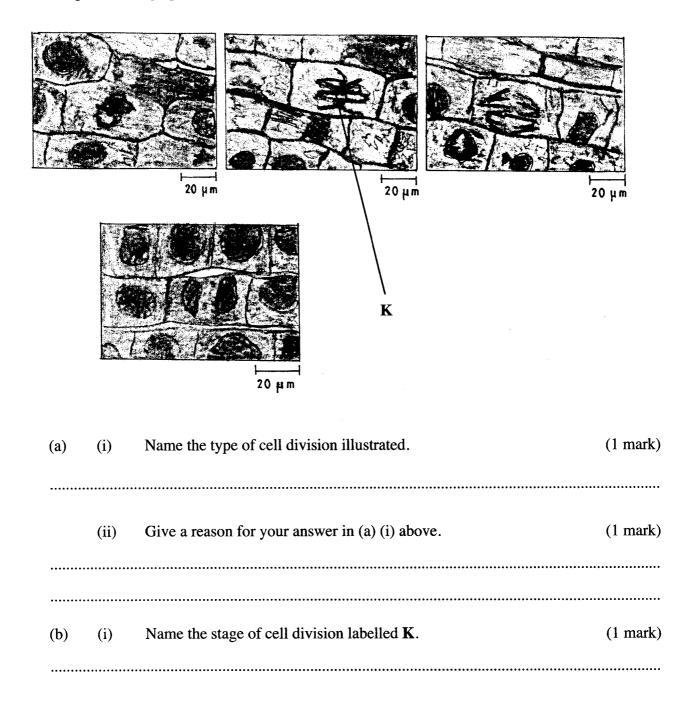
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| | •••••• | | Kenya Certificate of Secondary Education, 2015 231/1 02315140 | |
|----|----------------|----------------|--|--|
| 14 | | Name | two types of involuntary muscles in mammals. | (2 marks) |
| 13 | State Mitos | | ifferences between the end products of mitosis and meiosis. Meiosis | |
| | (b) | anterc | g an ecological visit to the Savanna Grassland, students were ablopes, vultures and pastoralists grazing their cattle. Construct a former levels to illustrate the energy flow in the ecosystem. | e to see lions, od chain with four (2 marks) |
| | •••••• | (ii) | pyramid of numbers? | (1 mark) |
| 12 | (a) | (i) | t is meant by each of the following: pyramid of biomass? | (1 mark) |
| 11 | Nam (a) | | tructures used for gaseous exchange in plants. | (2 marks) |
| | •••••• | | | (1 mark) |
| | (b) | State and I | 7 the significance of the evolution observed on the parietal bone in the burner of the evolution observed on the parietal bone is the second s | |

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(b) State the location of each of the muscles named in (a) above. (2 marks)

15 The photomicrographs below show the various stages of cell division in a certain plant.



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| (ii) | Give | 9 9 reason for your organistic (1) (1) | |
|-------------|---|---|-----------|
| | | e a reason for your answer in (b) (i) above. | (1 mark) |
| Stat | te four st | tructural differences between millipedes and centipedes. | (4 marks) |
| Mil | lipedes | Centipedes | |
| ••••• | ••••••••••••••••• | | |
| •••••• | ••••••••••••••••••••••••••••••••••••••• | | |
| (a) | | is a human stomach adapted to | |
| ••••• | (i) | protein digestion? | (2 marks) |
| •••••• | | | |
| •••••• | •••••• | | |
| | (ii) | churning? | (2 marks) |
| •••••••• | | | |
| •••••••• | •••••• | | |
| (b) | What h | happens to the glucose synthesized during photosynthesis? | (2 marks) |
| ••••••••••• | ••••••••••••••••••••••••••••••••••••••• | | |
| •••••• | ••••• | | |
| •••••• | ••••• | | ••••••• |

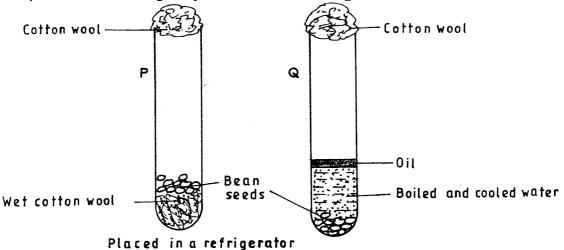
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18 The diagram below shows an experimental set-up to investigate the conditions necessary for germination. Test tube **P** was placed in a refrigerator while **Q** was left at room temperature. The set-ups were observed regularly for two weeks but no germination occurred.



Explain the observations in **P** and **Q**.

| P | (2 marks) |
|---|-----------|
| | |
| | |
| Q | (3 marks) |
| | |
| | |

19 (a) Using the axes provided below, sketch a curve to illustrate the growth pattern observed in the phylum arthropoda. (2 marks)



TIME (Days)

Kenya Certificate of Secondary Education, 2015 231/1 02315140.

| explain the growth pattern observed observed in arthropods. | Smarks) |
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| e components of a simple reflex pathway: | |
| terneurone; | |
| uscle; | |
| otor neurone; | |
| | |
| in receptor; | |
| entral nervous system. | |
| omponents in their proper sequence during the transmission of a nerve impulse | |
| | marks) |
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| | e components of a simple reflex pathway: terneurone; uscle; otor neurone; nsory neurone; in receptor; ntral nervous system. |

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