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Name of School:……………………………………………………..............................…….

Name of Student:………………………………………………..............................…...……

Signature:……………………….....….......……**Personal No**.……............…………………

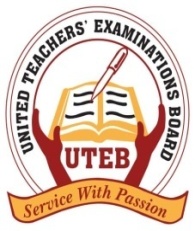
**Biology**

Paper 1

(Theory)

Jul. /Aug. 2019

**2 ½ Hours**

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**UTEB - JOINT MOCK EXAMINATIONS, 2019**

**Uganda Certificate of Education**

**BIOLOGY**

**(THEORY)**

**Paper 1**

2 Hours 30 minutes

**INSTRUCTIONS TO CANDIDATES:**

* This paper consists of section A, B and C.
* Answer all questions in sections A and B, plus two questions in section C.
* Write the answers to section A in the boxes provided, and answers to section C in the answer booklets provided.

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| --- | --- | --- | --- |
| **For Examiner's Use Only** | | | |
| **Part/Question** | | **Marks** | **Examiner's Signature And Number** |
| **SECTION A** | |  |  |
| **SECTION B** | **31** |  |  |
| **32** |  |  |
| **33** |  |  |
| **SECTION C** |  |  |  |
|  |  |  |
| **Total** | |  |  |

**SECTION A (30 MARKS)**

1. Arthropods are one of the most successful group of organisms on land because they;
2. Have a water proof exoskeleton
3. Can move very fast
4. Have jointed legs
5. Have segmented bodies

1. Which of the following are structural adaptations to flight in birds?
2. Light bones and webbed feet
3. Webbed feet and light feathers
4. Streamlined body and light bones.
5. Smooth body and light feathers.
6. The interaction between two species as they both attempt to use the same environmental resources is termed as;
7. Competition
8. Parasitim
9. Commensalism
10. Coexistence

1. The presence of starch and not glucose is used to show that photosynthesis takes place in the leaves. This is because;
2. Glucose is always formed during photosynthesis
3. Starch is always formed during photosynthesis
4. Glucose formed is immediately converted into starch
5. Glucose is never formed in leaves

1. Which of these hormones stimulates the re –absorption of water in the kidneys?
2. Adrenaline hormone
3. Thyroxine hormone
4. Insulin hormone
5. Antidiuretic hormone

1. The role of suitable temperature in germination is to;
2. Promote germination
3. Accelerate food hydrolysis
4. Promote enzyme activities
5. Enables oxidation of glucose
6. What is the role of the cambium in plants?
7. Shoot elongation
8. Shoot enlargement
9. Lateral growth
10. Root tip formation
11. Which of the following initiates blood clotting in mammals?
12. Fibrinogen
13. Fibrin
14. Thrombokinase
15. Thrombin

1. During which stage of meiosis are the chiasmata formed;
2. Metaphase I B. Prophase I
3. Telophase I D. Anaphase I

1. Which one of the following organisms undergo budding?
2. Amoeba B. Yeast
3. Plasmodium D. Mammals

1. The scales of a fish skin are used for;
2. Easy movement
3. Reflection of light
4. Protection of inner parts
5. Increased surfaced area of propulsion

1. In a flower the essential parts are;
2. Stamens and petals B. Pistil and sepals
3. Petals and sepals D. Pistil and stamens

1. In which two parts of the alimentary canal are proteins chemically digested;
2. Small intestines and colon
3. Stomach and duodenum
4. Mouth and duodenum
5. Mouth and stomach

1. A pregnant mother suffers from weakened bones and teeth, the vitamins and minerals to correct this defects are;
2. Vitamin C, phosphorous and calcium
3. Vitamin B, iodine and calcium
4. Vitamin A, calcium and clay
5. Vitamin D, phosphorus and calcium

1. Which of the following processes is not carried out by bacteria only?
2. Denitrification
3. Nitrification
4. Putrification
5. Nitrogen fixation
6. When one walks out of a bright sunshine to a poorly lit room, what happens in his eyes?
7. The circular iris muscles contract
8. The radial iris muscles relax
9. The lens because thicker
10. The circular muscles relax

1. The movement of part of a plant in response to a non – directional stimulus is termed as;
2. Tropism B. Taxis
3. Nasty movement D. Phototropism

1. A woman who has small breasts, beards and a deep voice is like to be having an over secretion of;
2. Testosterone B. Oestrogen
3. Oxytocin D. Adrenaline

1. Vertebraterial canals, broad flat transverse processes are characteristic of;
2. Cervical vertebra B. Sacral vertebra
3. Lumbar vertebra D. Thoracic vertebra
4. The urine of a healthy person contains no glucose because;
5. The nephrone is impermeable to glucose
6. Glucose passes back into the blood stream
7. The kidneys convert glucose to urea
8. Glucose is used for respiration before reaching the collecting ducts.

1. The route followed by an impulse passing along a motor neuron is;
2. Nerve endings, dendrone, axon, dendrites
3. Cell body, axon, dendrone dendrites
4. Nerve endings, dendrites, dendrone, axon
5. Dendrites, dendrone, axon, nerve endings
6. The circulatory system of an embryo is never in direct contact with the mother’s blood vessels because;
7. Many substances in the mother’s blood are poisonous
8. Mothers blood pressure would burst the capillaries in embryo
9. It is connected to the uterus via the placenta
10. The mother’s blood contains no respiratory gases.
11. 160cm3 of water was added to 250cm3 of dry soil. The volume of the mixture after stirring was 380cm3. Calculate the percentage of air in the soil sample?
12. 41.0%
13. 25.0%
14. 90%
15. 12%
16. The following mechanisms / processes will easily lead to evolution of new species **except;**
17. Inbreeding
18. Mutation
19. Isolation
20. Out breeding

1. This is likely to cause pollution of an aquatic habitat;
2. Over fishing
3. Boat racing
4. Use of fertilizers
5. All the above.
6. Which one of the following is an advantage of vegetative propagation?
7. Parents and off springs rarely compete
8. Colonization of new habitats is not easy
9. Variation among off springs will occur
10. Maintenance of parental characteristics in off springs.

1. This method is best for estimating of the population density of chimpanzees in a forest;
2. Direct counting
3. Capture – recapture method
4. Aerial photography
5. Quadrant method
6. Growth can be measured using any of the following methods **except;**
7. Age of an organism
8. Length of an organism
9. Volume of an organism
10. Fresh dry weight of an organism

1. Which of the following parts of a tooth contains living tissues?
2. Cement
3. Pulp cavity
4. Enamel
5. Dentine

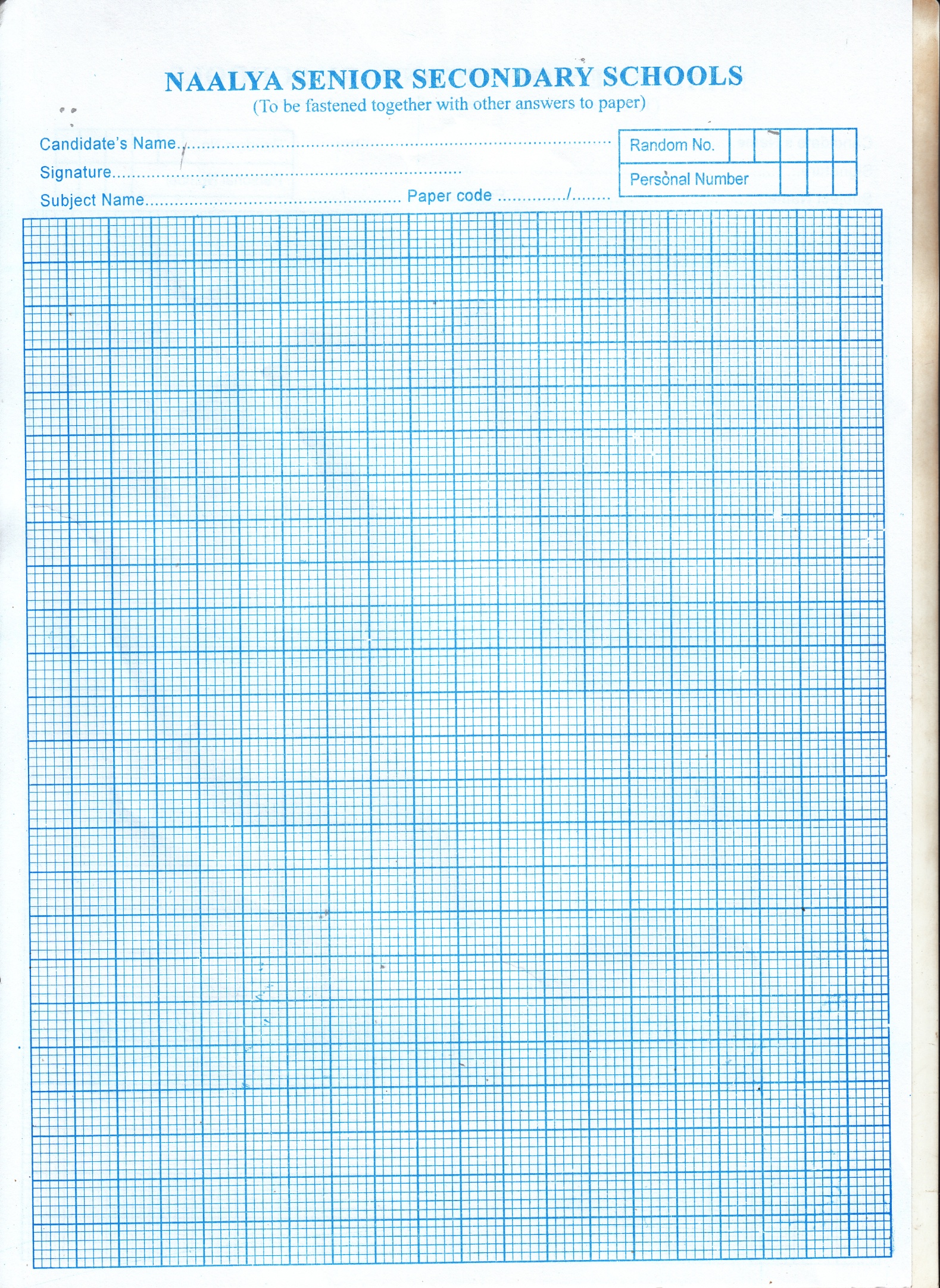
1. Individual with blood Group AB are said to be universal recipients because they have;
2. No antigens
3. Antibody a and b
4. Both antigens and antibodies
5. No antibodies

**SECTION B (40 MARKS)**

1. The following results were obtained from a study of a population growth of fruit flies (***drosophila*** ***melanogaster***).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Time (weeks) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Number of flies | 20 | 44 | 882 | 145 | 221 | 275 | 320 | 313 | 296 | 270 |

1. On the graph paper provided, plot the graph to show how drosophila population varies with time. **(08 marks)**

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1. Describe the trend of the graph during the 10 weeks.  **(03 marks)**

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1. Explain the trend of the graph during the 10 weeks. **(03 marks)**

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1. Give two reasons for change which took place after seven weeks. **(02 marks)**

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1. At the seventh week, it was observed that some of the flies were red eyed and others white eyed. In the previous generation, however all the flies were red eyed.
2. If the two alternative eye colours are inherited according to the mendelian laws, which one of them is recessive?  **(01 mark)**

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1. How many of the flies counted at the seventh week were red eyed?

(show your working) **(03 marks)**

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1. (a) Complete the table below concerning blood transfusion in man. **(04 marks)**

|  |  |  |
| --- | --- | --- |
| **Blood group** | **Can donate to** | **Can receive from** |
| A |  |  |
| B |  |  |
| AB |  |  |
| O |  |  |

(b) What is the advantage of having blood group AB? **(01 mark)**

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(c) (i) What is the main disadvantage of having blood group O? **(01 mark)**

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(ii) What do you understand by agglutination of Red blood cells?

**(02 marks)**

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(d) (i) What are anti bodies? **(02 marks)**

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1. (a) Explain how each of the following is achieved during movement of the Tilapia

fish in water.

1. Reduced water resistance. **(02 marks)**

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1. Coming on the surface to feed **(02 marks)**

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1. Braking in case it has been moving fast.  **(02 marks)**

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(b) Birds have been found to enjoy aerial life without difficulty. State four structural adaptations that have enabled birds to live an aerial life. **(04 marks)**

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**SECTION C (30 MARKS)**

1. (a) State five roles played by invertebrates in soil improvement.  **(05 marks)**

(b) Describe an experiment you would carry out to show that soil contains living organisms.  **(10 marks)**

1. (a) Define the term excretion. **(02 marks)**

(b) With out using diagrams, describe the process of urine formation in man.

**(13 marks)**

1. (a) Differentiate epigeal germination from hypogeal germination. **(04 marks)**

(b) State the roles played by the following in seed germination;

(i) adequate supply of water  **(02 marks)**

(ii) favourable temperature  **(02 marks)**

(c) Describe an experiment that can be carried out in a laboratory to show that germinating seeds respire.  **(07 marks)**

1. (a) Briefly describe the digestive processes that take place in;
2. The duodenum **(04 marks)**
3. The ileum  **(05 marks)**

(b) How is the absorption surface of the alimentary canal adapted for its function?

**(06 marks)**

**End**