THE UNITED REPUBLIC OF TANZANIA NATIONAL EXAMINATIONS COUNCIL CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

033/1

BIOLOGY 1

(For Private Candidates Only)

Time: 3 Hours

Thursday, 07th November 2013 a.m.

Instructions

- 1. This paper consists of sections A, B and C.
- 2. Answer all questions in sections A and B and one (1) question from section C.
- 3. Except for diagrams that must be drawn in pencil, all writings should be in blue or black ink.
- 4. Calculators and cellular phones are not allowed in the examination room.
- 5. Write your Examination Number on every page of your answer booklet(s).

SECTION A (20 Marks)

Answer all questions in this section.

| (*) | TT1 | | | 200 | | | | | |
|--------|------------------------------------------------------------------------------------------------------------|---------------------------------|---------|--------------|----------------|-------------|----------------|--|--|
| (i) | The diseases which is common infection of the respiratory system is | | | | | | | | |
| | A | Tuberculosis | В | AIDS | | C . | Malaria | | |
| | D | Cholera | E | Typho | oid. | | | | |
| (ii) | The | hormone which controls respo | nse for | fight or | flight in anir | nals is | | | |
| | A | Anti-dulatic | В | Thyro | xin | C | Adrenalin | | |
| | D | Oxtocin | Ε. | Insuli | n. | | | | |
| (iii) | The tiny structures in which gaseous exchange take place in human lungs is known as | | | | | | | | |
| , , | A | bronchi | В | | hioles | C. | trachea | | |
| | D | alveoli | E | | li ducts. | | | | |
| (iv) | In arthropods, the possession of one pair of legs per segment is a typical characteristics of which Class? | | | | | | | | |
| | A | Arachnida | В | Insect | a | C | Diplopoda | | |
| | D | Crustacea | E | Chilo | | C | Dipropoda | | |
| (v) | Wh | ich of the following is a major | product | of aerob | ic respiratio | n? | | | |
| (.) | A . | | В | Alcohol | | С | Energy | | |
| | D | Lactic acid | E | Water | | | Lifergy | | |
| (vi) | For | an enzyme to work properly in | cellula | r reaction | ns, the optim | um tempe | erature | | |
| (, | in mammals should be | | | | | | | | |
| | A | 10°C - 20°C | В | 37°C - | 40°C | C | 0°C -10°C | | |
| | D | $1^{0}C - 2^{0}C$ | E, | 80°C - | 100°C. | | 0 0 -10 0 | | |
| (vii) | A te | erm used in biology to identify | the org | ganism th | at depends | on host fo | r food but not | | |
| | shelter is known as | | | | | | | | |
| | A | parasite | B. | endop | arasite | C | symbiosis | | |
| | D | ectoparasite | E | mutua | ilisim. | | 7 | | |
| (viii) | The reagent used to test for starch in unknown food sample solution is | | | | | | | | |
| | A - | | | В | Benedict's | | 140 | | |
| | C | Sudan III solution | | D | Copper su | 1 | | | |
| 0.54 | E | Sodium hydroxide. | | | - | | | | |
| (ix) | The main function of the cornea in the human eye is to | | | | | | | | |
| | A reflect light into the eye B refract light from the eye | | | | | 0.00 | | | |
| 7.7 | C . transfer light into the eye | | D | refract ligh | | | | | |
| 13.5 | 1 | reflect light in the ave | | 100 | Torract tigi | it mito the | Cy C | | |

- (x) The statement which best describe the function of root hairs in plants is

 A translocation of food materials B translocation of water and food

 C transportation of water and food

 E absorbs water and mineral salts.
- 2. Match the responses in **List B** with the phrases in **List A** by writing the letter of the correct response from **List B** beside the item number of **List A** in your answer booklet.

| | List A | List B | | |
|--------|---------------------------------------------------------------------------------------|-----------------------------------|--|--|
| (i) | Large, inactive and non-motile unit of reproduction. | A Sperm cell | | |
| (ii) | Is a small unit capable of transmitting electrical impulses. | B Muscle cell C Nerve cell | | |
| (iii) | It forms a lining of internal organs and vessels. | D Bone tissue E Nerve tissue | | |
| (iv) | Have irregular shape and are loosely packed in leaves to create a large air space. | F Egg cell | | |
| (v) | A group of neurones working together. | G Blood tissue H White blood cell | | |
| (vi) | It has no nuclei and their cytoplasm contain haemoglobin. | I Red blood cell | | |
| (vii) | It is column shaped and has numerous chloroplasts in the cytoplasm. | J Xylem cell K Phloem cell | | |
| (viii) | | L Animal cell M Epithelial tissue | | |
| (ix) | Smallest, active and motile unit of reproduction. | N Palisade mesophyll cell | | |
| (x) | Thick walled tube and is used for transportation of water and mineral salt in plants. | O Sponge mesophyll cell | | |

SECTION B (60 Marks)

Answer all questions in this section.

All questions carry 8 marks except question six and seven which carry 6 marks each.

- 3. (a) Briefly explain why do Biologists prefer to use a light microscope in the laboratory rather than using normal eyes?
 - (b) Draw a well labelled diagram of light microscope.
- (a) Explain the general and distinctive features of the Kingdom Protoctista.
 - (b) Outline three demerits of natural classification system.

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- 5. (a) Briefly state four types of trophic levels found in food webs.
 - (b) Give two examples of organisms for each trophic level you named in 5(a).
- 6. (a) Define the term "genetics".
 - (b) In the experiment conducted by Mendel, one pure strain of pea plants had yellow peas and crossed with another pure strain having green peas. Then, their offspring (F1 generation) were self-pollinated. Find out the phenotypic ratio and indicate how it was obtained from this experiment in the first and the second filial generations if yellow colour was dominant over green colour.
- 7. (a) Define the following terms:
 - (i) Fertilization.
 - (ii) Ovulation.
 - (b) Name two types of twins and explain how they occur.
- 8. (a) Give the meaning of the term "excretion".
 - (b) (i) List down the types of excretory products in plants.
 - (ii) In what ways are plant excretory products useful?
- 9. (a) Outline the stages of human post-natal growth and development.
 - (b) Explain why oxygen, water and optimum temperature are required in the germination of seed?
- 10. The diagram in Figure 1 is a reflex arch in a human being. Study the diagram and answer the questions that follow:

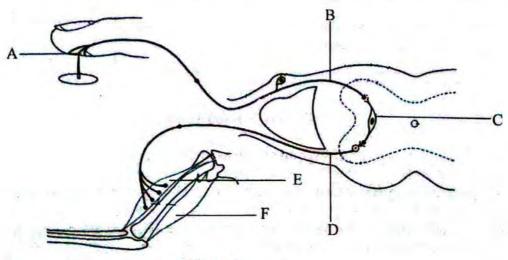


Figure 1

- (a) Name the labelled parts A F.
- (b) (i) Outline the function of parts B, C and D.
 - (ii) If someone touches hot object, what is the response shown by part E?
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SECTION C (20 Marks)

Answer one (1) question from this section.

- 11. (a) Describe the functions of the major components of blood.
 - (b) Explain how HIV affects the white blood cells of human being.
- 12. Explain six factors that affect the immunity of the body in human being.
- Describe three traditional methods and five modern methods used in food processing, preservation and storage.