

**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.

1. For each of the items (i) - (x), choose the correct answer from among the given alternatives and write its letter beside the item number.
- (i) The diseases which is common infection of the respiratory system is
A Tuberculosis B AIDS C Malaria
D Cholera E Typhoid.
- (ii) The hormone which controls response for fight or flight in animals is
A Anti-dulatic B Thyroxin C Adrenalin
D Oxtocin E Insulin.
- (iii) The tiny structures in which gaseous exchange take place in human lungs is known as
A bronchi B bronchioles C trachea
D alveoli E alveoli ducts.
- (iv) In arthropods, the possession of one pair of legs per segment is a typical characteristics of which Class?
A Arachnida B Insecta C Diplopoda
D Crustacea E Chilopoda.
- (v) Which of the following is a major product of aerobic respiration?
A Oxygen B Alcohol C Energy
D Lactic acid E Water.
- (vi) For an enzyme to work properly in cellular reactions, the optimum temperature in mammals should be
A $10^{\circ}\text{C} - 20^{\circ}\text{C}$ B $37^{\circ}\text{C} - 40^{\circ}\text{C}$ C $0^{\circ}\text{C} - 10^{\circ}\text{C}$
D $1^{\circ}\text{C} - 2^{\circ}\text{C}$ E $80^{\circ}\text{C} - 100^{\circ}\text{C}$.
- (vii) A term used in biology to identify the organism that depends on host for food but not shelter is known as
A parasite B endoparasite C symbiosis
D ectoparasite E mutualisim.
- (viii) The reagent used to test for starch in unknown food sample solution is
A Iodine solution B Benedict's solution
C Sudan III solution D Copper sulphate
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
C transfer light into the eye D refract light into the eye
E reflect light in the eye.

- (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 | D | absorption 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
(iii) It forms a lining of internal organs and vessels.	C Nerve cell
(iv) Have irregular shape and are loosely packed in leaves to create a large air space.	D Bone tissue
(v) A group of neurones working together.	E Nerve tissue
(vi) It has no nuclei and their cytoplasm contain haemoglobin.	F Egg cell
(vii) It is column shaped and has numerous chloroplasts in the cytoplasm.	G Blood tissue
(viii) Found in plants, and is used for transport of food products.	H White blood cell
(ix) Smallest, active and motile unit of reproduction.	I Red blood cell
(x) Thick walled tube and is used for transportation of water and mineral salt in plants.	J Xylem cell
	K Phloem cell
	L Animal cell
	M Epithelial tissue
	N Palisade mesophyll cell
	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.
4. (a) Explain the general and distinctive features of the Kingdom Protocista.
- (b) Outline three demerits of natural classification system.

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:

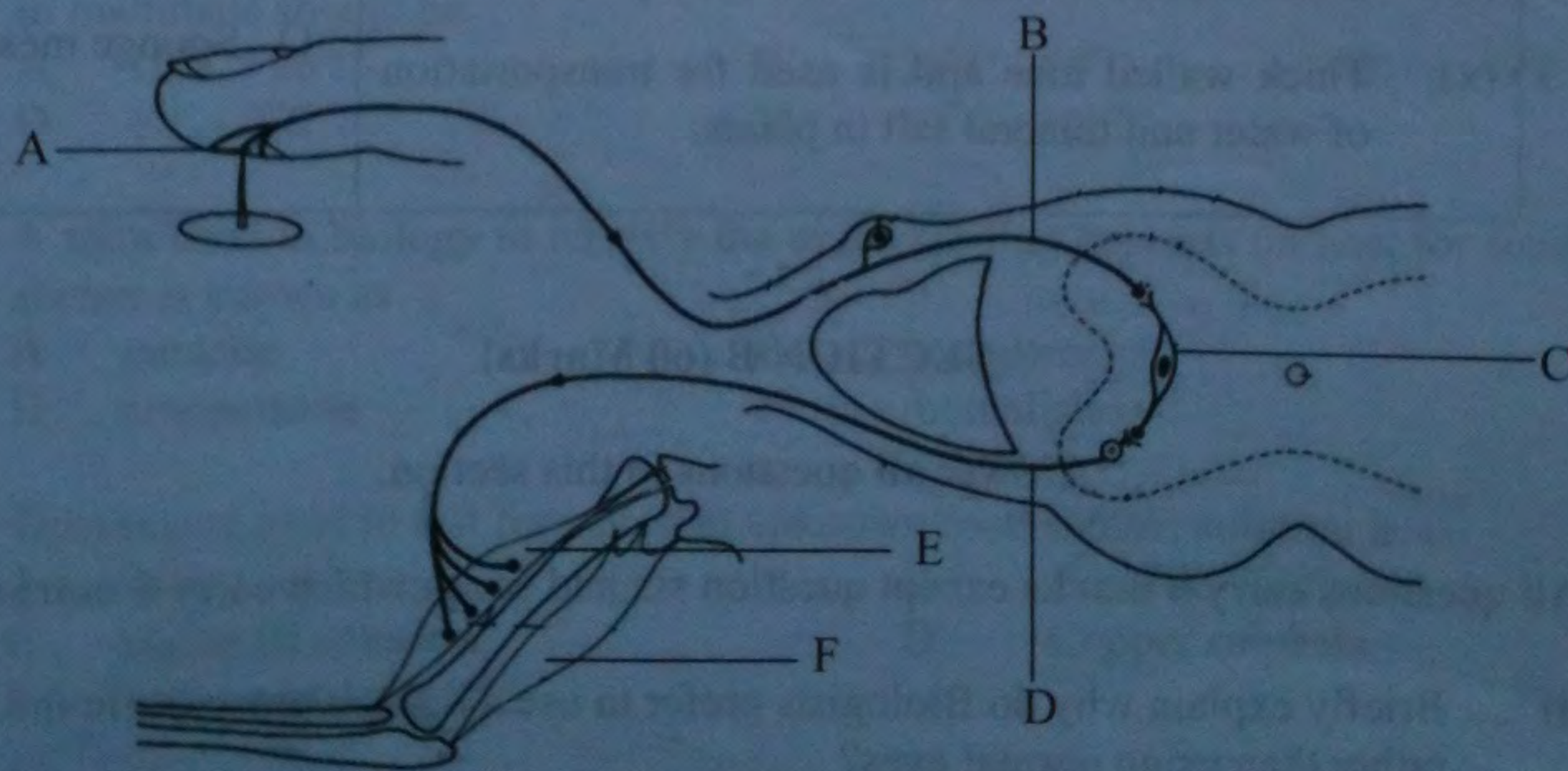


Figure 1

- (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?

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.
13. Describe three traditional methods and five modern methods used in food processing, preservation and storage.