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

133/2

BIOLOGY 2
(For Both School and Private Candidates)

Time: 2 Hours 30 Minutes **2006 February, 17 Friday p.m.**

INSTRUCTIONS

1. This paper consists of sections A, B and C.
2. Answer **five (5)** questions including at least one question from each section.
3. Read each question carefully before you start answering it.
4. Each question carries 20 marks.
5. Cellular phones are **not** allowed in the examination room.
6. Write your **Examination Number** on every page of your answer booklet(s).

ACS

This paper consists of 3 printed pages.

SECTION A

1. Study figures 1 and 2 below and answer the question which follow.

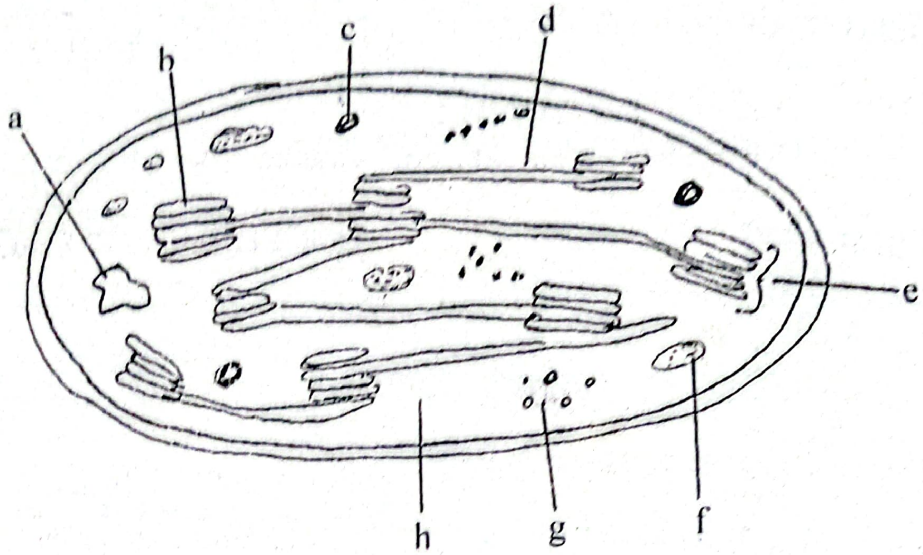

Fig. 1

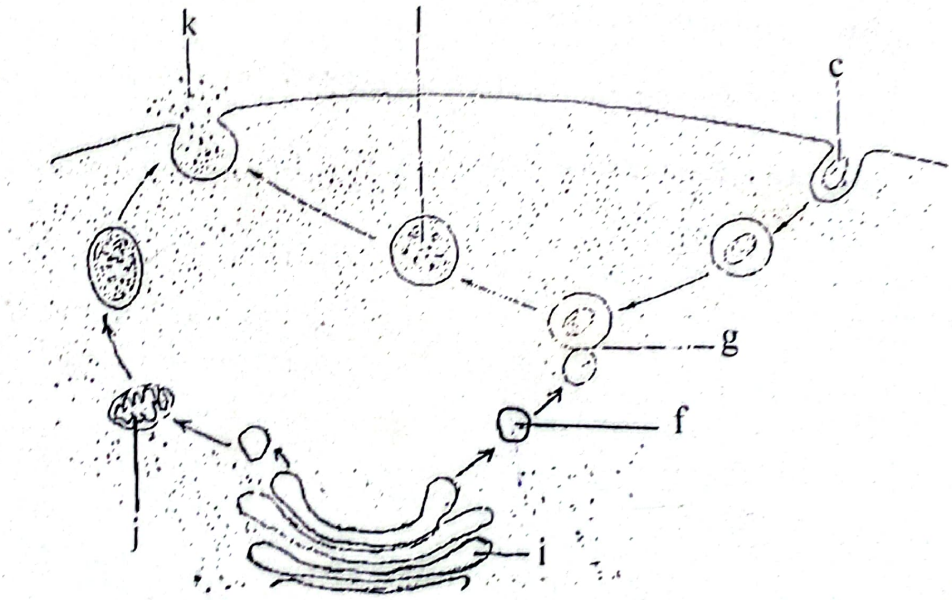

Fig. 2

(a) (i) Identify figure 1 and describe its role in an eukaryotic cell.

(ii) Identify **eight (8)** of the structures labelled a, b, c, d, e, f, g, h, i, j, k and l.

(iii) State the roles of structures b and h.

(b) (i) Explain what is taking place in figure 2.

(ii) What role will structure f play when the cell dies?

2. (a) Describe the characteristics features of viruses.

(b) With the aid of well labelled diagrams show the life cycle of a bacteriophage.

SECTION B

5. Specialized regions of the body that detect stimuli are called receptors. Identify the main types of receptors and state their location and roles in the mammalian body.

4. With the aid of diagrams discuss the relationship between structure and function of the epithelial tissue involved in digestion.

5. What are the common disorders of the urinary system in humans? Discuss their cause, effects and preventive measures?

6. (a) Describe how respiratory gases (O_2 and CO_2) in the blood are transported from the tissues to the respiratory surface and vice versa.

(b) Apart from transporting respiratory gases, what are the other transport functions of blood?

7. Using a diagram, describe the structure of the cardiac muscle and explain how it is adapted to its role.

SECTION C

8. (a) There are three types of ecological pyramids.

(i) Identify and name them.
(ii) Show how they are constructed.

(b) What are the advantages and disadvantages of each of the pyramids identified in 8 (a)?

9. (a) Show why it is not possible to use a homozygous dominant organism in a back cross or test-cross experiment to determine the genotype of organisms showing the dominant phenotype.

(b) Name **three (3)** genetic disorders involving whole chromosomes in humans and explain how they are brought about.