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

033/1 **BIOLOGY 1**

(For Both School and Private Candidates)

Time: 3 Hours ***Wednesday*, October 12, 2005 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. Read each question carefully before you start answering it.
4. Electronic calculators are **not** allowed in the examination room.
5. Cellular phones are **not** allowed in the examination room.
6. Write your **Examination Number** on every page of your answer booklet(s).

CPB

This paper consists of *8* printed pages.

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) Rickets is a common feature in young children lacking one of the following vitamins:

A C B A C D D B E K.

Study the diagram below (Figure 1) and answer questions (ii) to (iv).

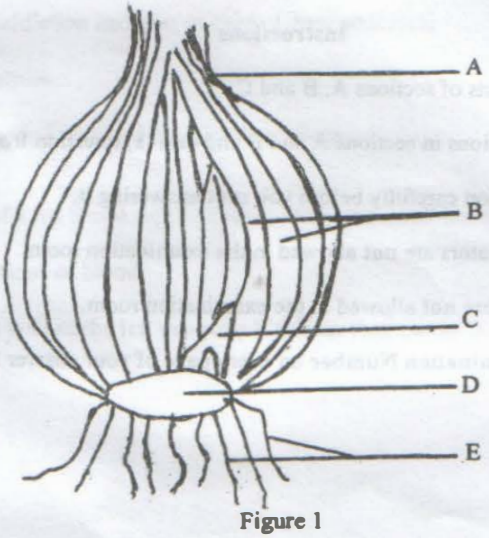

Figure 1

(ii) The structure which is responsible for food storage is

A B B A C D D E E C.

(iii) Vegetative propagation occurs due to the presence of structure

A B B A C D D E E C.

(iv) Figure 1 above represents a

A rhizome B stem tuber C root tuber
D bulb E stolon.

(v) Which one of the following tissues is meristematic?

A Cornified layer of the skin B Collenchyma C Cambium
D Sclerenchyma E Xylem .

(vi) The concept of good health implies _____ health.

A sexual, physical and mental B physical, mental and social
C mental, sexual, and physical D physical, mental and family
E reproductive, social and family.

(vii) Figure 2 shows a section of a villus. Which part is a lymphatic vessel?

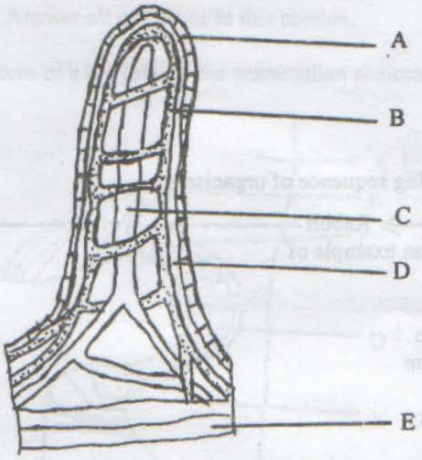

Figure 2

(viii) When red flowered pea plants were crossed with white flowered pea plants, all the F_1 generation had pink flowers. This is an example of

A crossing over B mutation C incomplete dominance
D recessiveness E inbreeding

(ix) Figure 3 shows a section of a root tip.

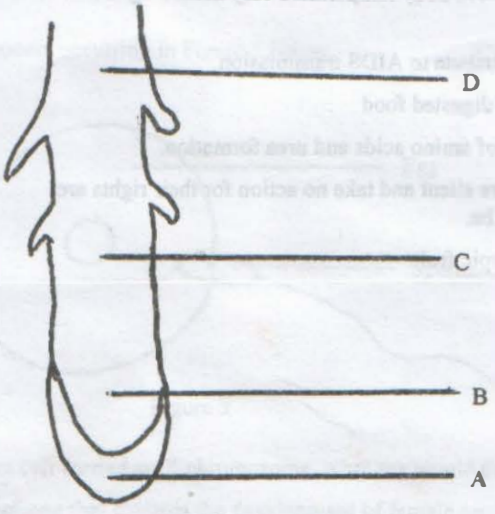

Figure 3

Which part of the root tip undergoes rapid cell division?

A A
B B
C C
D D
E A and B.

(x) Study the following sequence of organisms:

Grass → Rabbit → Wolves → Fleas.

The sequence is an example of

A a food web
B a food chain
C an ecosystem
D a pyramid
E a community.

2. Match the phrases in List A with the responses in List B by writing the letter of the correct response beside the item number.

	LIST A		LIST B
(i)	A space between teeth of herbivores.	A	Pawpaw
(ii)	Structures performing different functions but have the same origin.	B	Banana
(iii)	Plant body not differentiated into root, stem and leaves.	C	Affective
(iv)	Circulation of blood between the heart and lungs.	D	Passive
(v)	Organisms whose body temperature vary according to the surrounding.	E	Liver
(vi)	Does not contribute to AIDS transmission.	F	Kidney
(vii)	Utilization of digested food	G	Absorption
(viii)	Deamination of amino acids and urea formation.	H	Assimilation
(ix)	People who are silent and take no action for their rights are considered to be.	I	Hugging
(x)	A parthenocarpic fruit.	J	Sexual contact
		K	Poikilothermic
		L	Homoeothermic
		M	Systemic circulation
		N	Pulmonary circulation
		O	Pteridophta
		P	Bryophyta
		Q	Analogous structure
		R	Homologous structure
		S	Jarce
		T	Diastema.

SECTION B (60 marks)

Answer all questions in this section.

3. (a) Figure 4 shows the structure of a hip joint in the mammalian skeleton.

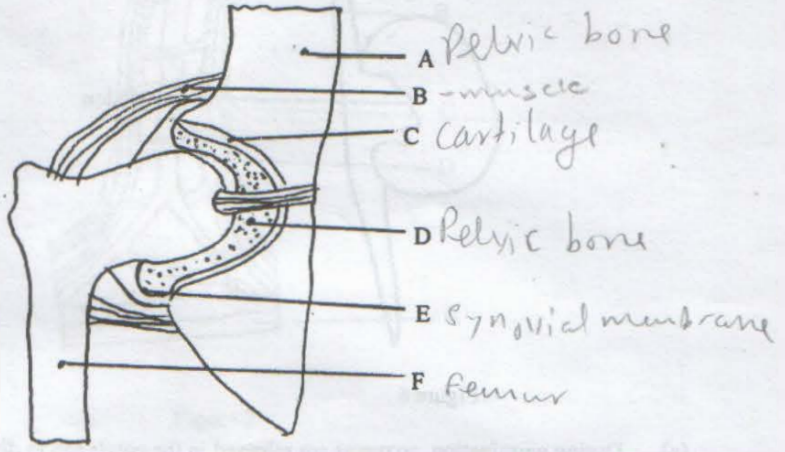

Figure 4

(i) Name the parts labelled A, B, C, D, E and F.

(ii) State the functions of parts B, C and D.

(iii) Name the type of joint represented by figure 4 and state the characteristics of such a joint.

(b) (i) Name the process occurring in Figure 5 below.

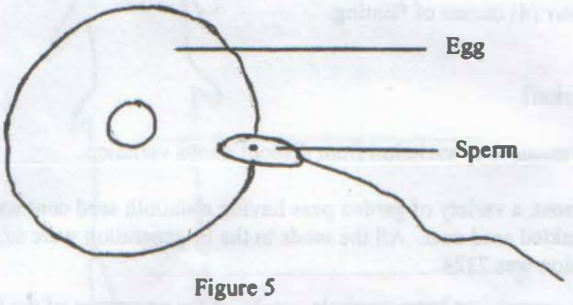

Figure 5

(ii) If the sperm cell carried an X chromosome, what sex would the developing foetus be?

(iii) Name a hormone that controls the development of female secondary sexual characteristics.

(iv) Write one (1) example of a human female secondary sexual characteristics . **(9 marks)**

4. Figure 6 shows a germinating bean seed.

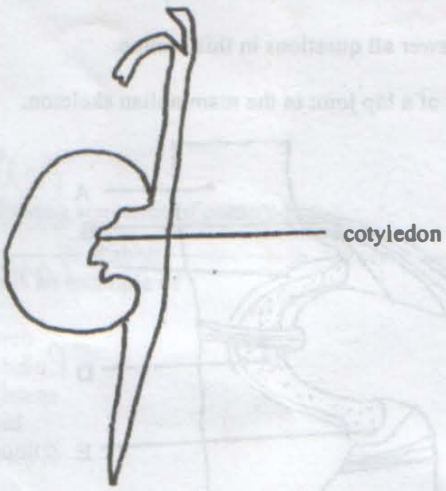

Figure 6

(a) During germination, enzymes are released in the cotyledon to digest stored food.

(i) Name the enzymes which will digest stored protein and starch.

(ii) The enzyme which digests protein cannot digest starch. Why?

(iii) The beans did not germinate when planted in acidic compost. What effect did the acid have on the bean's enzymes?

(b) What is the function of starch stored in a bean to the human body? **(6 marks)**

5. (a) What is shock?

(b) What are the causes of shock?

(c) List down four (4) causes of fainting. **(6 marks)**

6. (a) What is variation?

(b) Differentiate continuous variation from discontinuous variation.

(c) In an experiment, a variety of garden peas having a smooth seed coat was crossed with a variety having a wrinkled seed coat. All the seeds in the F_1 generation were selfed and the total number in F_2 generation was 7324.

(i) Using appropriate letter symbols, work out the genotypes of the F_1 generation.

(ii) From the information above, write the total number of wrinkled seeds in the F_2 generation.

(8 marks)

7. (a) Figure 7 shows the arrangement of tissues in a dicotyledonous plant.

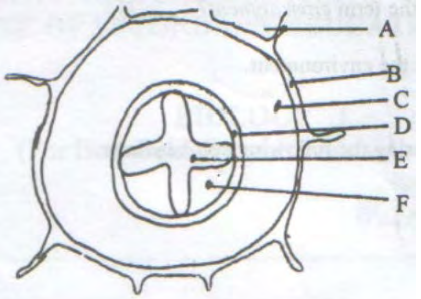

Figure 7

(i) Name the parts labelled A, B, C, D, E and F.

(ii) State the functions of parts A, B, E and F.

(iii) From which part of the plant body was the section taken? Give reasons.

(b) What are the functions of roots in plants? **(8 marks)**

8. Explain why

(a) it is possible for a person to swallow something while standing on his head.

(b) one does not urinate frequently on a hot day.

(c) cell turgidity in plants is necessary. **(7 marks)**

9. (a) (i) What do you understand by the term mulching?

(ii) What are the advantages of mulching?

(b) (i) List down the characteristics of viruses.

(ii) How do viruses differ from bacteria? **(7 marks)**

10. (a) (i) Distinguish between gaseous exchange and breathing.

(ii) What is the importance of gaseous exchange?

(iii) List down the factors governing gaseous exchange at the alveoli of the lungs.

(b) Name the organ/structure and the organism to which the following respiratory surfaces belong

(i) Alveoli.

(ii) Gill lamellae.

(iii) Lining of buccal cavity.

(iv) Tracheae.

(c) What is the economic importance of the process of fermentation? **(9 marks)**