

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

033/2

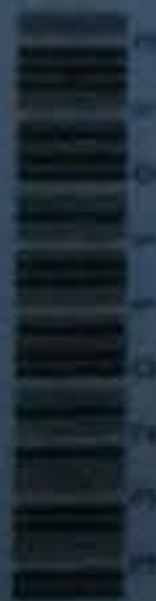
BIOLOGY 2  
ALTERNATIVE TO PRACTICAL  
(For Both School and Private Candidates)

Time: 2:30

Friday, 08<sup>th</sup> November 2013 a.m.

Instructions

1. This paper consists of **five (5)** questions. Answer **all** the questions.
2. Each question carries 10 marks.
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).



1. Study Figures 1 and 2, and then answer the questions that follow.

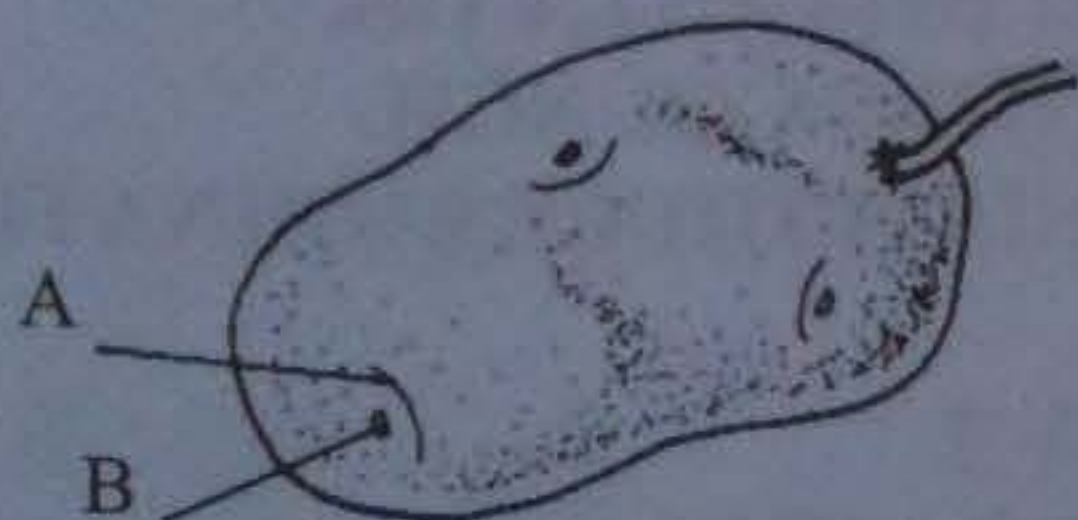


Figure 1

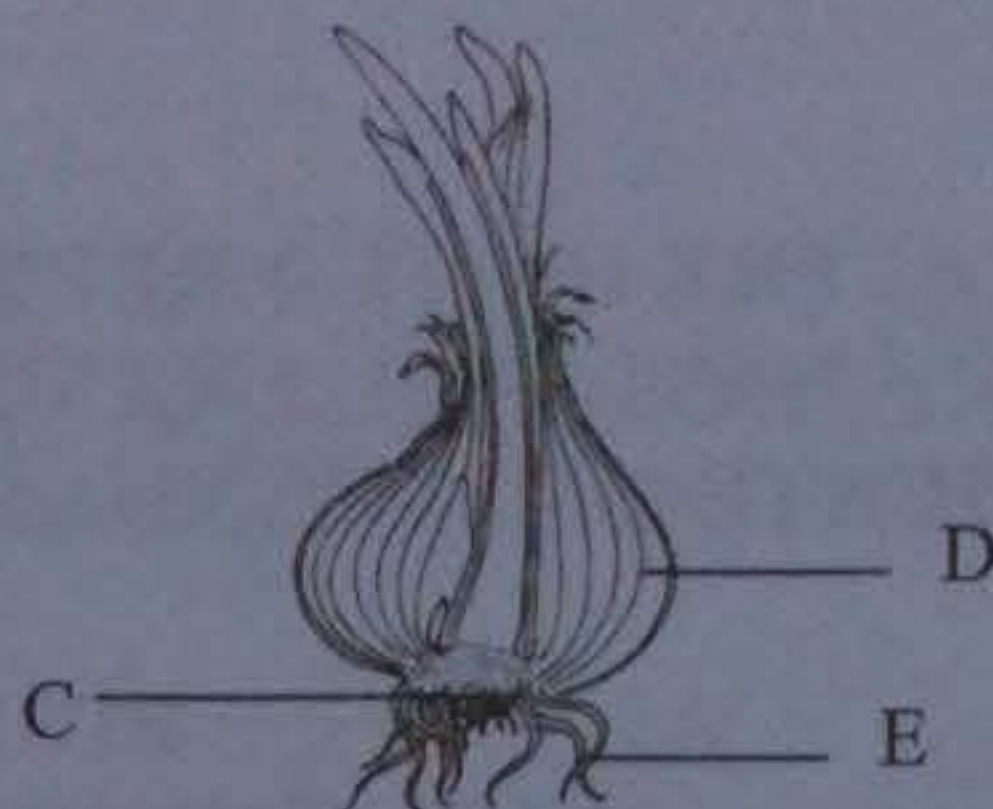


Figure 2

- (a) (i) Identify Figures 1 and 2.  
(ii) What part of a plant is Figure 1?  
(iii) Label structures represented by A, B, C, D and E.
- (b) (i) What roles do Figures 1 and 2 have in common?  
(ii) How would you prepare Figure 1 for an experiment to identify the types of food found in it?  
(iii) State the reagent you would use to identify the type of food in Figure 1 and Figure 2. What are the expected positive results for each?
2. Figure 3 shows the structure of a flower. Carefully study it and then answer the questions that follow.

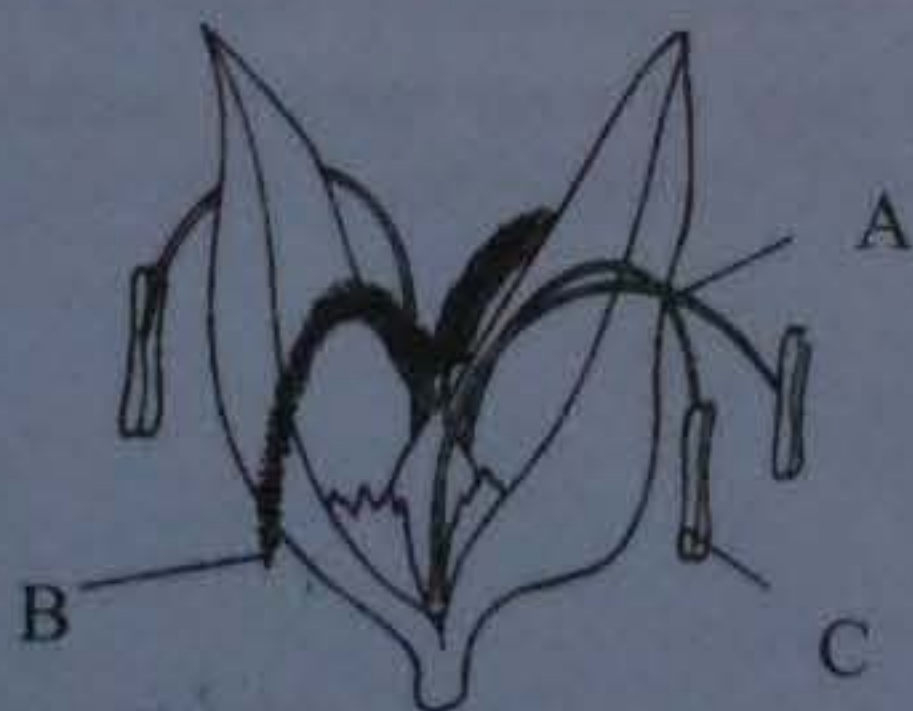
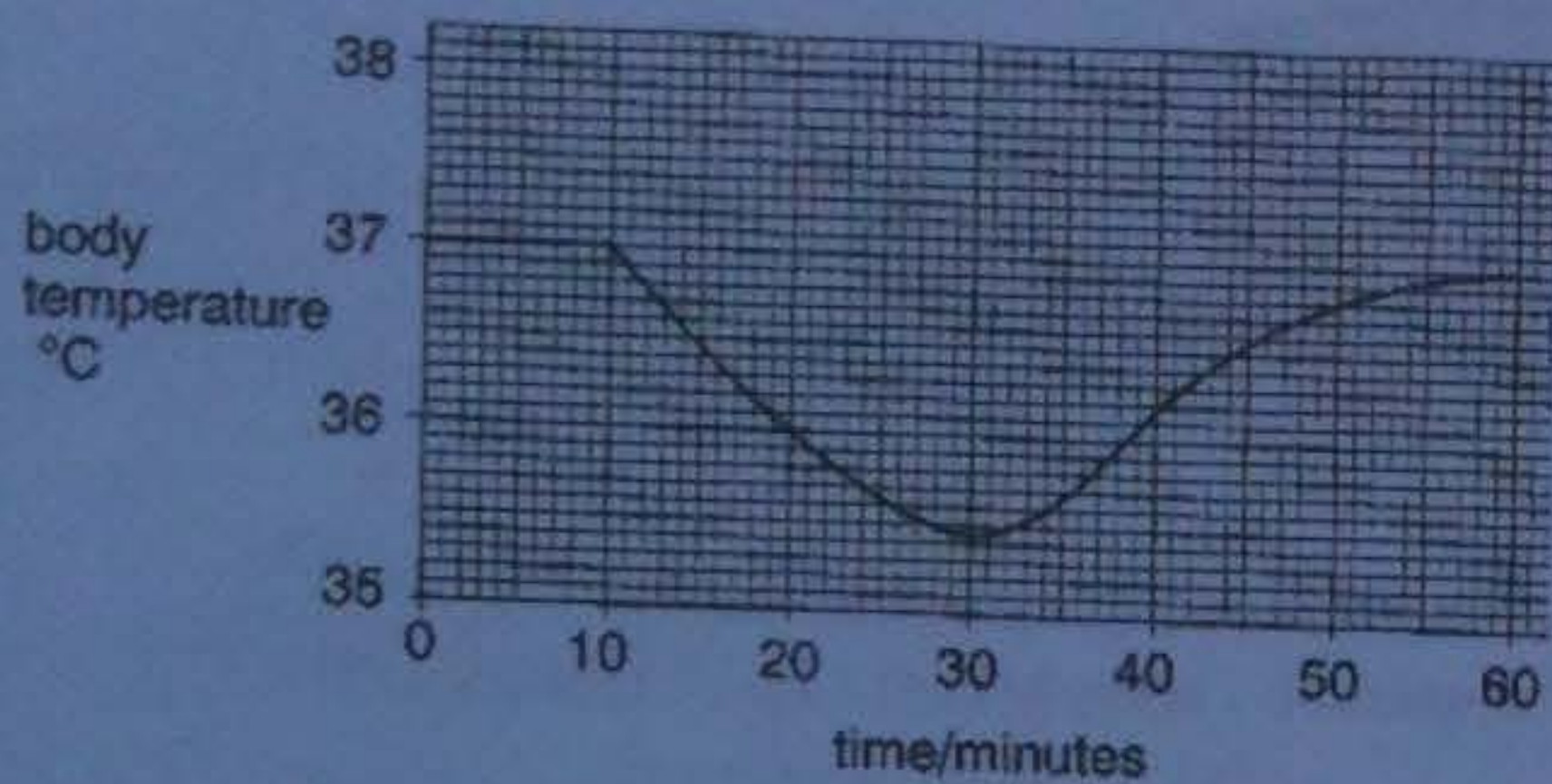


Figure 3

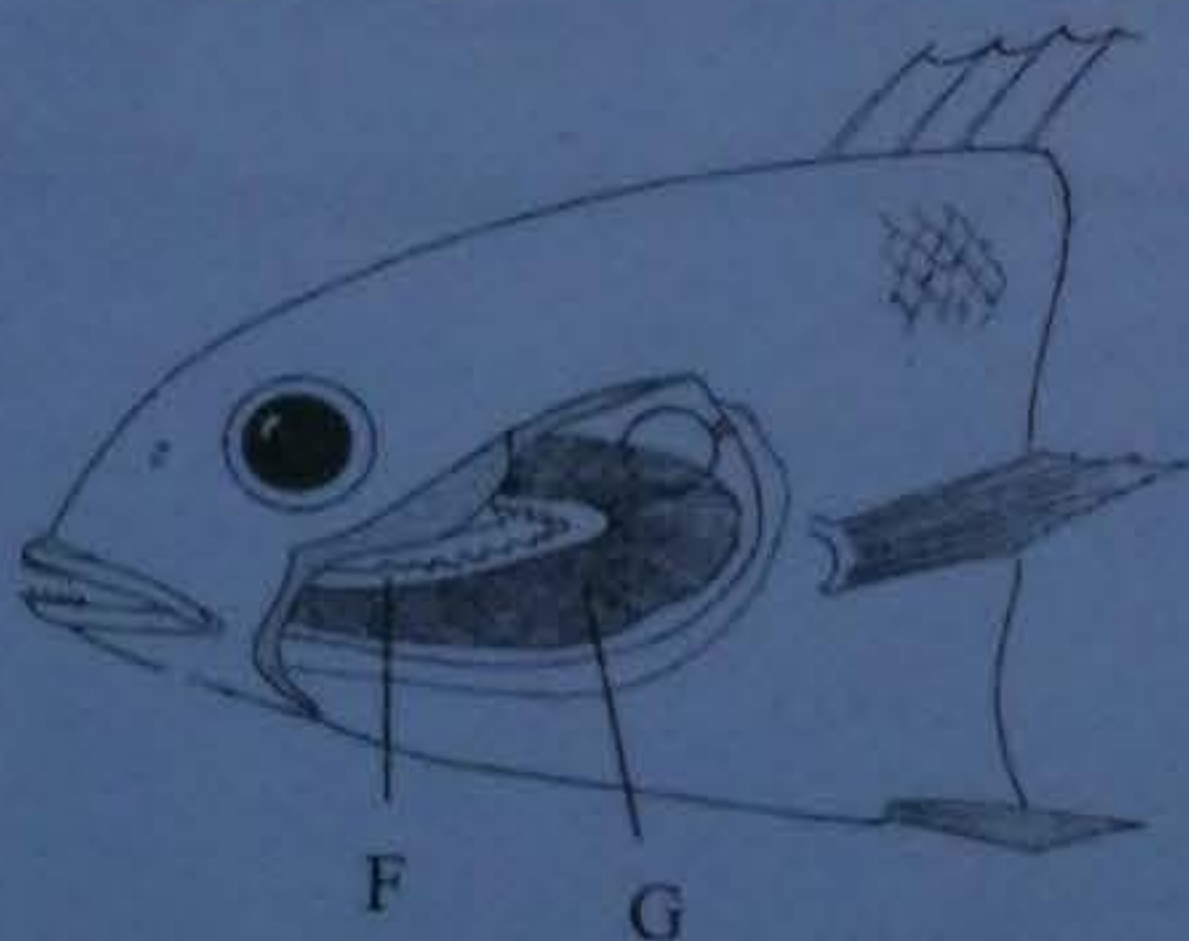
- (a) Identify structures A, B and C.
- (b) Name the agent(s) of pollination in Figure 3.
- (c) State the observable features you used to recognize the agent of pollination in Figure 3.
- (d) Outline any four examples of plants adapted for pollination facilitated by the agent(s) you named in (b) above.
- (e) Describe how the process of pollination is most likely to occur in such a flower.
- (f) What is the importance of pollination to agriculture?

3. Figure 4 shows the body temperature of an animal that was placed in a water bath. The temperature of the bath water was 22°C. Study it and answer the questions that follow.



**Figure 4**

- (a) Explain why the temperature of the animal dropped during the first 30 minutes?
- (b) State two ways to show how the body temperature of the animal fell.
- (c) Briefly describe different processes that took place in the animal to return its body temperature to the normal condition.
- (d) (i) What is the name of the group of animals which respond to temperature changes in a similar manner as the animal in the experiment?  
(ii) Mention any four organisms which belong to the group mentioned in (d) (i).
4. Study Figure 5 which shows the front part of a fish with a structure removed, and then answer the questions that follow.



**Figure 5**

- (a) (i) Name the structures F and G.  
(ii) What is the name of the structure that has been removed?  
(iii) Briefly explain the problems would specimen in Figure 5 face in absence of the structure you named in (ii) above.  
(iv) How is structure G adapted to the function it performs?
- (b) (i) Briefly describe the process that involves the structures identified in (a)(i).  
(ii) Why can't a fish survive on land?

5. Study the diagram in Figure 6 and answer the questions that follow.



**Figure 6**

- (a) (i) Name the organism from which Figure 6 was taken.
- (ii) Name the parts of the animal's body where Figure 6 is located.
- (b) (i) Classify the organism you named in (a) (i) to class level.
- (ii) State four general characteristics of the phylum to which the organism identified in (a) (i) above belongs.
- (iii) State two adaptations shown by the organism you named in (a) (i) to its mode of locomotion.