

231/3  
BIOLOGY  
PAPER 3  
TIME: 2 HOURS

*Kenya Certificate of Secondary Education (K.C.S.E.)*

Biology  
Practical

**INSTRUCTIONS TO CANDIDATES:**

- Write your **name** and **index number** in the spaces provided.
- Sign and write **date** of examination in the spaces provided above
- Answer **all** the questions in section **A** and **B**
- You are required to spend the first 15 minutes of the 1  $\frac{3}{4}$  hours allowed for this paper reading the whole paper carefully.

**For Examiner's Use Only:**

QUESTIONS	MAXIMUM SCORE	CANDIDATES SCORE
1	15	
2	15	
3	10	
<b>TOTAL</b>	<b>40</b>	

*This paper consists of 4 printed pages. Candidates should check to ascertain that all papers are printed as indicated and that no questions are missing*

1. You are provided with iodine solution benedict's solution, solution s, solution p source of heat and a warm water bath. Divide solution S into two equal halves in test tubes provided. Take one halve and carry out the food test. Fill the table below. (6mks)

Food	Procedure	Observation	conclusion

- b) (i) Take the other half of solution S add 2ml of solution P and place the contents in a warm water bath maintained at 37°C to 40°C for 30 minutes. After carry out the same tests as in 1(a) above and record your procedure observation and conclusions in the table below. (4mks)

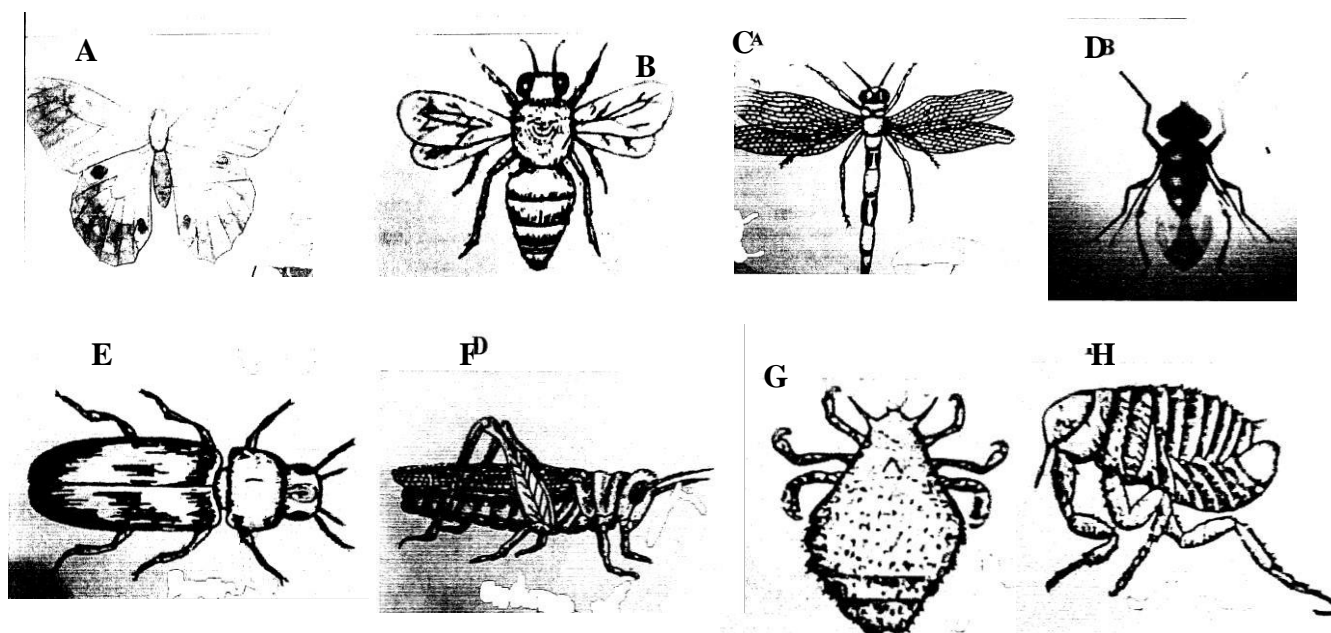
Food	Procedure	Observation	conclusion

(ii) Account for the results obtained in **b(i)** above

(4mks)

(iii) Why was the solution in **b(i)** above kept in a water bath maintained at temperature of between 37°C to 40°C (1mk)

2. (a) Study the photographs below and complete the Biological key below.



- 1 (a) Wings present..... go to 2  
(b) \_\_\_\_\_ go to 7
- 2 (a) Two pair of wings ..... go to 3 (b) \_\_\_\_\_  
..... Diptera.
- 3 (a) Both pairs of wings membranous. .... go to 4  
(b) Only hind wings membranous..... go to 6
- 4 (a) Long abdomen..... Odonata  
(b) Medium sized abdomen..... go to 5
- 5 (a) Both pairs of wings with coloured scales..... Lepidoptera  
(b) Wings not coloured with coloured scales..... Hymenoptera
- 6 (a) Forewings with hard and shell like..... Coleoptera

- 7 (b) Front wings hard but not shell like..... Orthoptera  
 (a) Body horizontally flattened.....Anoplura  
 (b)\_\_\_\_\_ ..... Siphonoptera

(b) Use the completed key to identify the organisms in the photograph. (8mks)

	Identity	Steps followed
A		
B		
C		
D		
E		
F		
G		
H		

(c) With reasons state the phylum to which the specimens in the photographs belong.

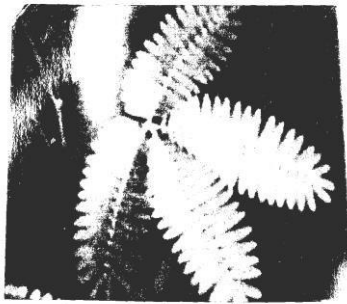
Phylum.....

(1mk)

Reasons.....

(3mks)

3. Photographs below shows responses of plants under different conditions. Photographs B<sub>1</sub> and B<sub>2</sub> shows responses of mimosa pudica before and after and that of C<sub>1</sub> and C<sub>2</sub> arte that of Maranta Lenconeura before and after the response.



B<sub>1</sub>



B<sub>2</sub>



C<sub>1</sub>



C<sub>2</sub>



D

- (a) Identify the kind of response shown by photographs B<sub>2</sub>, C<sub>2</sub> and D

(3mks)

B<sub>2</sub>, .....

C<sub>2</sub> .....

D.....

- (b) Explain how specimen D is able to coil around a hard object.

(4mks)

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- (c) Explain the importance of the response shown by specimen B<sub>1</sub> and B<sub>2</sub>

(3mks)

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