

231/2
BIOLOGY
PAPER 2
THEORY
Time: 2 hours

**BHATI GIRLS HIGH SCHOOL
MOCK EXAM**

Instructions to candidate

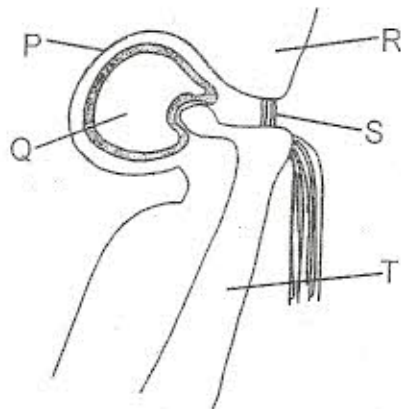
1. This paper consists of two sections A and B.
2. Answer **all** the questions in section A in the spaces provided after each question.
3. In Section B, answer question 6 (**Compulsory**) in the spaces provided and either question 7 or 8 in the spaces provided after questions 8.
4. Candidates will be penalized for incorrect spellings especially for biological terms.
5. All working must be clearly shown where necessary.

For Examiner's use only

| Section | Questions | Maximum Score | Candidate's Score |
|-------------|-----------|---------------|-------------------|
| A | 1 | 08 | |
| | 2 | 11 | |
| | 3 | 07 | |
| | 4 | 10 | |
| | 5 | 04 | |
| B | 6 | 20 | |
| | 7 | 20 | |
| | 8 | 20 | |
| TOTAL SCORE | | 80 | |

SECTION A (40 Marks)

1. The diagram below represents bones at a joint found in the hind limb of a mammal.



(a) Name the bones labelled P, R and T.

(3 marks)

P -

R -

T -

(b) (i) Name the substance found in the place labelled Q.

(1 mark)

(ii) State the function of the substance named in b (i) above.

(1 mark)

(c) Name the structure labelled S.

(1 mark)

(d) Give **one** difference between the hinge joint and the one shown above.

(1 mark)

(e) Name the bone that articulate with the bone labelled T, at its distal end.

(1 mark)

2. (a) Distinguish between population and community.

(2 marks)

(b) Give three application of knowledge gained from the study of ecology.

(3 marks)

(c) Define the characteristics of populations given below.

(3marks)

(i) Density

(ii) Dispersion

(iii) Population growth

(d) State **three** assumptions made while using the capture-recapture method to estimate population.

(3 marks)

3. (a) Name **two** defects of the eye.

(2 marks)

(b) Give **one** function of each of the following parts of the eye.

(2 marks)

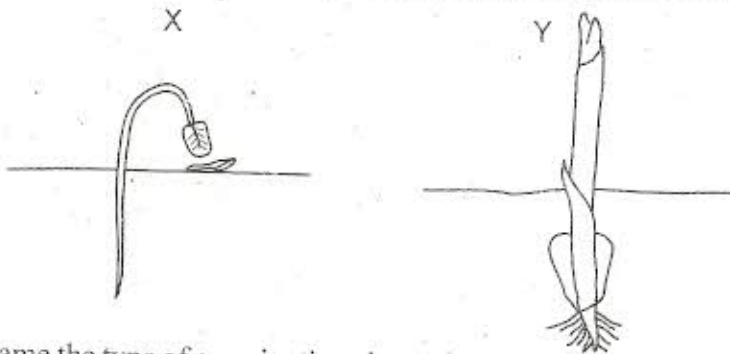
(i) Sclera

(ii) Ciliary body

(c) State **three** causes of deafness.

(3 marks)

4. Study the diagrams below and answer the questions that follow.



(a) Name the type of germination shown in

X-

(1 mark)

Y-

(1 mark)

(b) Give a reason for your answer in (a) above.

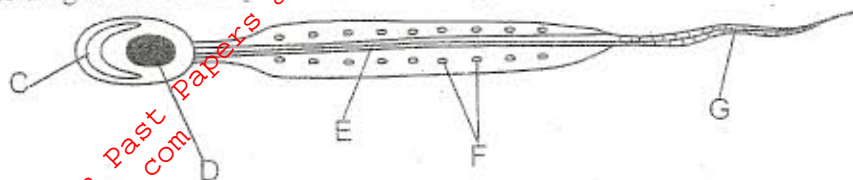
X-

(1 mark)

Y-

(1 mark)

5. The diagram below represents a human spermatozoon



(a) Name the part labelled C.

(1 mark)

(b) Give one function of the part labelled D.

(1 mark)

(c) Explain two adaptations of the human spermatozoon

(2 marks)

SECTION B (40 marks)

Answer questions 6 (compulsory) in the spaces provided and either question 7 or 8 in the spaces provided after question 8.

6. In an experiment to investigate the effect of heat on germination of seeds, ten bags each containing 50 pea seeds were placed in water bath maintained at 80°C. After every two minutes a bag was removed and seeds contained in it planted. The number that germinated was recorded. The procedure used for pea seeds was repeated for wattle seeds. The results obtained were as shown in the table below.

| Time (Minutes) | Number of seeds that germinated | |
|----------------|---------------------------------|--------------|
| | Pea seeds | Wattle seeds |
| 0 | 50 | 0 |
| 2 | 50 | 0 |
| 4 | 46 | 0 |
| 6 | 38 | 4 |
| 8 | 30 | 16 |
| 10 | 12 | 26 |
| 12 | 4 | 30 |
| 14 | 0 | 34 |
| 16 | 0 | 36 |
| 18 | 0 | 38 |
| 20 | 0 | 39 |
| 22 | 0 | 39 |

6. (a) Using a suitable scale on the same axis, draw graphs of time in hot water against the number of seeds that germinate for each plant. (8 marks)



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(b) From 0 - 2 minutes, all the 50 pea seeds germinated. Explain. (2 marks)

(c) Account for the decrease in the number of pea seeds that germinated from 4 - 12 minutes. (3 marks)

(d) From 14 - 22 minutes, zero pea seeds germinated. Explain why. (2 marks)

(e) An increase in minutes had a corresponding increase in the number of wattle seeds that germinated. Explain. (2 marks)

(f) From 20 - 22 minutes, a higher number of wattle seeds germinated and were recorded. Explain. (2 marks)

(g) State one method of breaking seed dormancy. (1 mark)

7. Describe the adaptation of xerophytes to their habitat. (20 marks)

8. Describe the adaptation of the mammalian heart to its function. (20 marks)