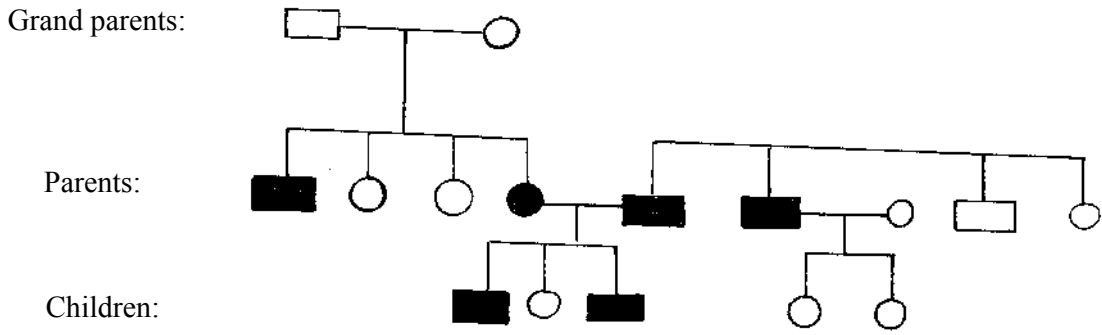


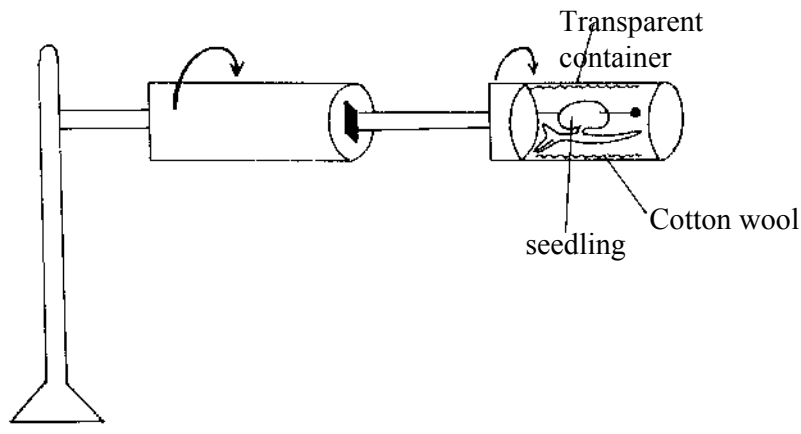
BIOLOGY
THEORY
Paper 2

SECTION A (40 MARKS)

1. The diagram below shows a family tree. Squares represents males and circles represents females. Normal individuals are indicated by unshaded squares and circles. Individuals who show genetically controlled defects are indicated by shaded squares and circles.



- What is the name given to this type of family tree. 1mk *Tso*
 - In which of the grand parents is the genetically controlled defects likely to have developed and by what process. 2mks *Tso*
 - Assume the genetically controlled defect was haemophilia, show the genotype of the following. 2mks *Tso*
 - Grand parents
 - The two couples
 - The children of the couple that showed the defect 1mk *Tso*
 - State the name given to people who have this defect. 1mk *Tso*
 - What are the symptoms of the defect 1mk *Tso*
 - What is the remedy 1mk *Tso*
2. A seedling with a straight radicle and plumule was attached to a machine drawn below, which rotated making one complete revolution in 15 minutes. The seedling was lying horizontally.

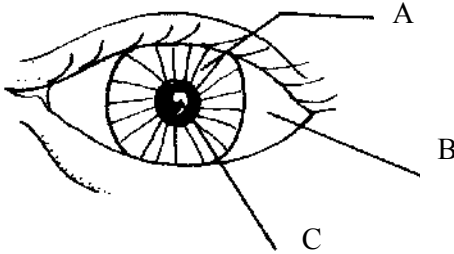


- After one week, draw how the seedling looked like 1mk *Tso*
 - Account for your results in (a) above 2mks *Tso*
 - What is the name of the machine on which the experiment was carried out? 1mk *Tso*
 - What stimulus was being investigated in this experiment? 1mk *Tso*
 - What type of response is expected in this experiment? 1mk *Tso*
3. Explain why during a vigorous exercise, the following changes occur in a person:-
- Increased heart beat 3mks *Tso*
 - Increased breathing rate. 2mks *Tso*
 - More sweating occurs. 2mks *Tso*

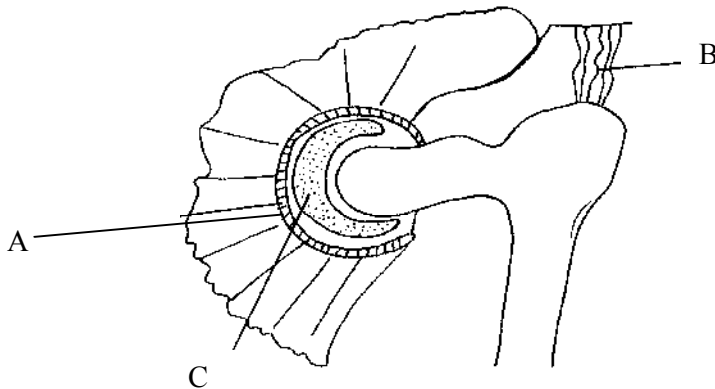
4. Different specimens were grounded using mortar pestle, then placed in test tubes A,B, C and D. 1% Hydrogen peroxide was added. The table below shows the results obtained.

Test – tube	Specimen	Observation
A	Fresh liver	A lot of bubbling
B	Muscle tissue	Bubbling less than in A
C	Seed coat	Little bubbling
D	Boiled potato	No bubbling

- a) Why was it necessary to grind the specimen before carrying out the experiment. 1mk *Tso*
 b) Name the enzyme which break down hydrogen peroxide in tissues 1mk *Tso*
 c) Account for the result in
 (i) Test tube A 2mks *Tso*
 (ii) Test tube C. 2mks *Tso*
5. The figure below shows the structure of the front part of human eye as observed.



- a) Identify the parts labeled A and C. 2mks *Tso*
 Part A
 Part C
 b) State the function of the parts labeled A and B. 2mks *Tso*
 Part A
 Part B
 c) The person moved to a different room and it was found that C enlarged. Explain the change. 3mks *Tso*
6. The diagram below shows some of the features of a synovial joint. Study the diagram carefully and answer the questions that follow.



- a) Name the parts labeled A and B. 2mks *Tso*
 b) State two roles of the part labeled C. 2mks *Tso*
 c) State one advantage of this type of joint. 1mk *Tso*

SECTION B – 40 MARKS

7. The diagram below is obtained from measurement of growth in the leaf petiole of pelorgorium plant. The relative growth rate is calculated and the data obtained is as shown below

Time in day	0	1	2	3	4	5	6	7	8	9
Relative growth rate (cm / day)	0	0.2	0.3	0.8	2.0	4.0	4.5	3.5	0.2	0

- a) Plot a graph of relative growth rate against time 7mks *Tso*

- b) Show how the relative growth rate is calculated to obtain the data above . 2mks**Tso**
- c) Account for the shape of the curve between the following days.
- | | |
|-------|--------------------|
| 2 – 5 | 3mks* <i>Tso</i> * |
| 5 – 6 | 3mks* <i>Tso</i> * |
-
- | | |
|-------|--------------------|
| 6 – 8 | 3mks* <i>Tso</i> * |
|-------|--------------------|
- d) Distinguish between primary growth and secondary growth. 2mks**Tso**
8. a) State the differences between gaseous exchange in fish and mammals. 4mks**Tso**
- b) Describe how inspiration and expiration take place in man. 16mks**Tso**
9. Describe the role of hormones in the human menstrual cycle. 20mks**Tso**