AGA KHAN UNIVERSITY EXAMINATION BOARD

SECONDARY SCHOOL CERTIFICATE

CLASS X

MODEL EXAMINATION PAPER 2023 AND ONWARDS

Biology Paper II

Time: 1 hour 50 minutes Marks: 25

INSTRUCTIONS

Please read the following instructions carefully.

1. Check your name and school information. Sign if it is accurate.

I agree that this is my name and school. **Candidate's Signature**

RUBRIC

2. There are SIX questions. Answer ALL questions. Questions 5 & 6 each offer TWO choices. Attempt any ONE choice from each.

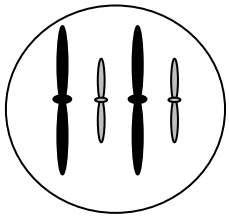
3. When answering the questions:

   Read each question carefully.
   Use a black pointer to write your answers. DO NOT write your answers in pencil.
   Use a black pencil for diagrams. DO NOT use coloured pencils.
   DO NOT use staples, paper clips, glue, correcting fluid or ink erasers.
   Complete your answer in the allocated space only. DO NOT write outside the answer box.

4. The marks for the questions are shown in brackets ( ).

Q.1. (Total 3 Marks)

The given diagram shows a cell with four chromosomes.



If this cell undergoes meiosis, then draw the chromosomes in the cell during **prophase I**, **metaphase I** and **metaphase II**?

Prophase I	Metaphase I	Metaphase II

Q.2. (Total 4 Marks)

a. Mention any TWO ways through which heat is lost from the human body. (2 Marks)

_____

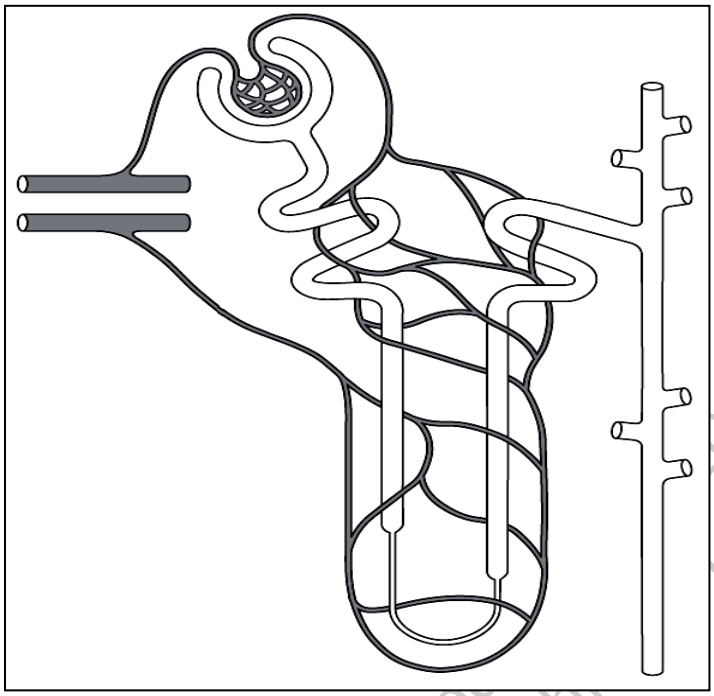
_____

_____

_____

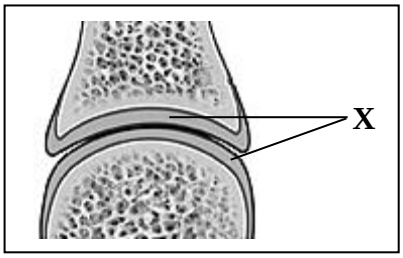
b. In the given diagram of a human nephron, trace the pathway of blood with the help of arrows (→).

(**Note**: Do NOT show the pathway of the filtrate.) (2 Marks)



Q.3. (Total 3 Marks)

The given diagram represents a human hinge joint.



a. Identify the structure labelled as **X**. (1 Mark)

_____

_____

b. Name the cells that make structure **X**. (1 Mark)

_____

_____

c. Mention the role of structure **X** in the joint. (1 Mark)

_____

_____

Q.4. (Total 3 Marks)

The given table demonstrates a genetic cross between two flowers.

Parents	Red	×	White
F1 Generation	Pink (50%)		
F1 x F1	Pink	×	Pink
F2 Generation	Red (25%)	Pink (50%)	White (25%)

a. Determine the genotype of the pink flowers produced in F1 generation. (1 Mark)

_____

_____

b. Determine the phenotype and genotype of offspring flowers if two red flowers from F2 generation are crossed. (2 Marks)

Phenotype: _____

Genotype: _____

Q.5. (Total 6 Marks)

EITHER

a.

i. Mention any FOUR physiological changes that would take place in the human body as a result of increased adrenaline level. (4 Marks)

ii. Describe the importance of any TWO physiological changes mentioned in part (i) for exercise or emergency situation. (2 Marks)

OR

b.

i. Describe the structural adaptation of a wind-pollinated flower with reference to its petals, pollen, stamens and stigmas. (4 Marks)

ii. Mention the importance of any TWO structures (given in part i) adapted for pollination through wind. (2 Marks)

Q.6. (Total 6 Marks)

EITHER

a. Describe continuous and discontinuous variations in humans. Give an example of human traits in each case to support your answer.

OR

b. Biotic components of an ecosystem cannot survive without abiotic components.

Describe the role of any THREE abiotic components in an ecosystem to support the given statement.

END OF PAPER

Please use this page for rough work

Please use this page for rough work