

AGA KHAN UNIVERSITY EXAMINATION BOARD

SECONDARY SCHOOL CERTIFICATE

CLASS X

ANNUAL EXAMINATIONS (THEORY) 2024

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 and 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 ().
5. You may use a simple calculator if you wish.

Q.1. (Total 3 Marks)

a. Why is the formation of cleavage furrow not possible in the cytokinesis of a plant cell? (1 Mark)

b. Describe how cytokinesis takes place in a plant cell. (2 Marks)

Q.2. (Total 4 Marks)

A doctor recommends lithotripsy to a patient. Before procedure, the doctor explains the essentials of treatment to the patient.

a. Identify the patient's medical condition for which the doctor would have recommended lithotripsy. (1 Mark)

b. What basic information would doctor share with the patient regarding the procedure of lithotripsy? (1 Mark)

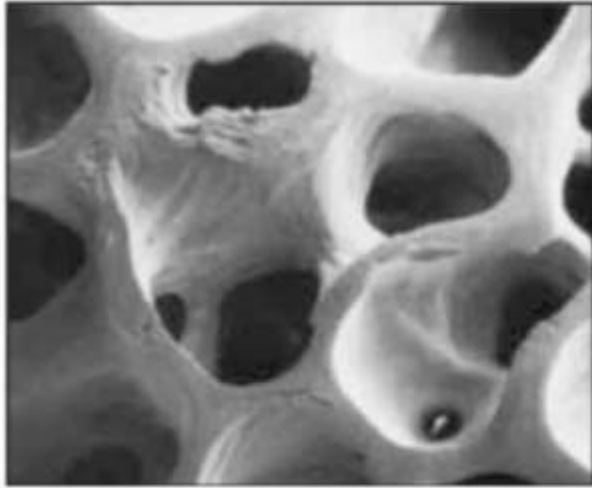
c. Why is the patient recommended to drink plenty of water after lithotripsy? (1 Mark)

d. To prevent the given condition in future, which food items the patient should avoid in the diet? (1 Mark)

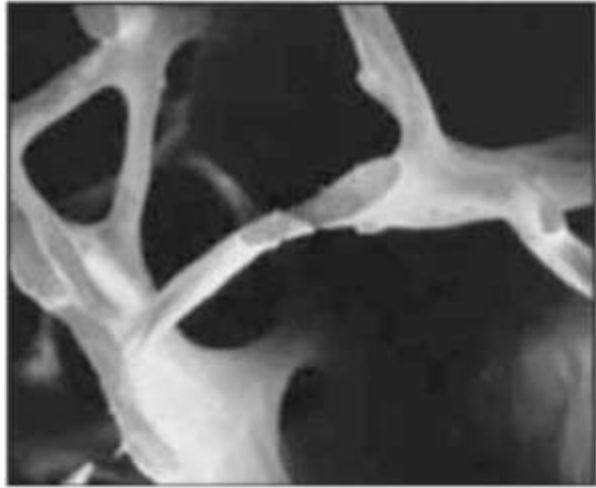
Q.3.

(Total 3 Marks)

Consider the given scanning electron micrographs of a bone tissue.



Normal Bone Tissue



Diseased Bone Tissue

- a. Identify the condition of the diseased bone. (1 Mark)

- b. Write any TWO symptoms in a patient suffering from the disease identified in part i. (2 Marks)

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Q.4.

(Total 3 Marks)

The given table demonstrates a genetic cross.

Parents Phenotype and Genotype	Straight haired individual RR	×	Curly haired individual rr
F1 Generation	Wavy Hair		

- a. Identify the type of dominance in the given cross. (1 Mark)

- b. What would be the genotype of wavy-haired offspring? (1 Mark)

- c. If two wavy-haired individuals are crossed, then what would be the phenotypic ratio of offspring? (1 Mark)

Q.5.

(Total 6 Marks)

EITHER

- a. Pancreas acts both as endocrine and exocrine gland.

With reference to the endocrine nature of pancreas, mention

- i. the names of hormones it produces. (2 Marks)
- ii. any ONE way in which each of these hormones maintain the blood glucose concentration. (2 Marks)
- iii. any ONE effect of hypo-secretion of each hormone on the body. (2 Marks)

OR

- b. Explain the process of vegetative propagation in onion and ginger. (6 Marks)

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Q.6.

(Total 6 Marks)

EITHER

- a. Describe how the following factors facilitate the process of evolution via natural selection.
- i. Genetic variation (4 Marks)
 - ii. Hereditary traits (2 Marks)

OR

- b. Describe how the following factors limit the population growth of an area.
- i. Competition (2 Marks)
 - ii. Predation (2 Marks)
 - iii. Parasitism (2 Marks)

END OF PAPER

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