

EASTERN UNIVERSITY, SRI LANKA

FACULTY OF SCIENCE

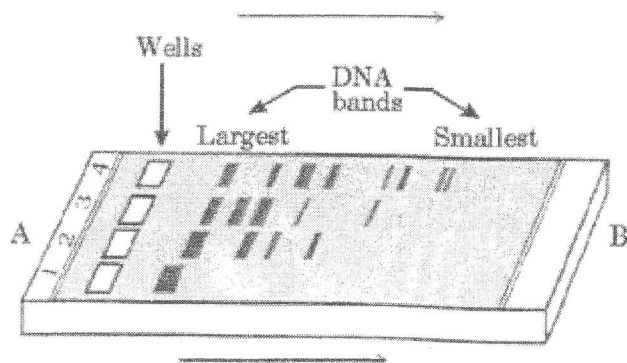
SECOND YEAR FIRST SEMESTER EXAMINATION IN SCIENCE -2021/2022
(2020/2021 intake) (March /April 2024)

BT 2072 – MOLECULAR BIOLOGY-Practical

Answer all questions

Time: - 01 1/2 Hours

- The set up E contain the necessary material for Extraction of DNA.
 - What do you understand by the term “Extraction of DNA” (5 marks)
 - Write down the DNA extraction methodology by using the material in the set up E (10 marks)
 - Briefly explain the scientific reason for using each and every material available in the set up E (10 marks)
 - “Plant DNA extraction has unique challenges than the animal DNA extraction” explain the statement (5 marks)
- Identify the Process “G” and write down the main purpose of this process (10 marks)
 - Explain the indicated steps 1,2 &3. (15 marks)
 - Give five important application of this process (10 marks)
- Identify this equipment H. Explain its components (10 marks)
 - Explain principles of gel electrophoresis (5 marks)
 - The diagram illustrating the observations made for the Gel electrophoresis technique of separating DNA fragments is provided below. Examine the illustration and respond to the following questions::



(i) Why the DNA fragments are moving from $A \rightarrow B$?

3marks

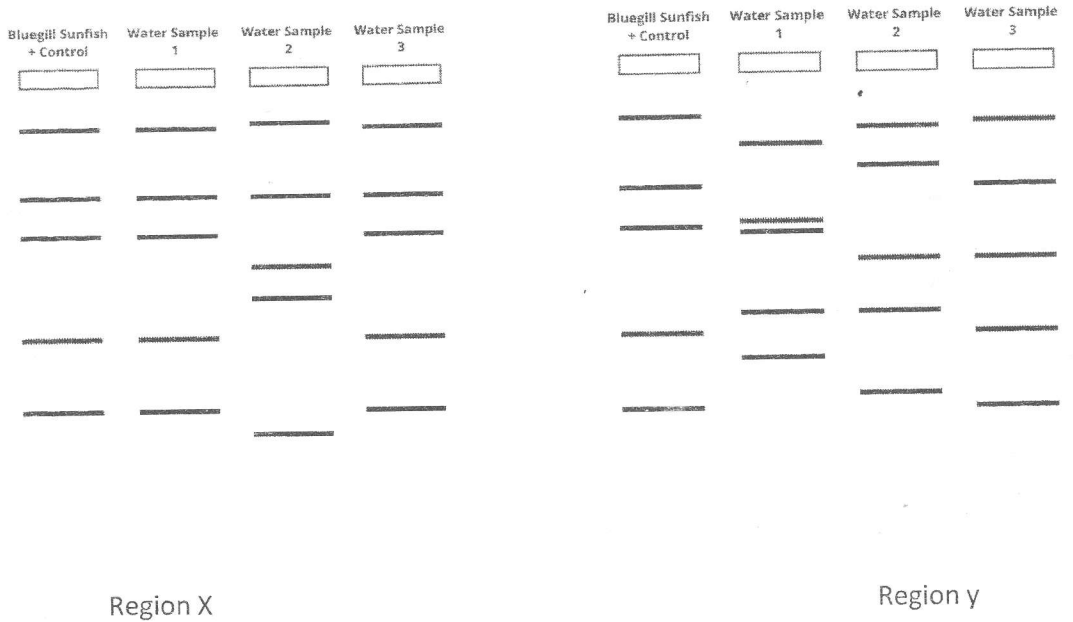
(ii) Which medium is used to separate the DNA fragments?

3marks

(iii) Indicate, how the separated DNA fragments can be visualised for further technical use.

4 marks

d.. A scientist is conducting a research to determine which water bodies in his area are habitats of bluegill sunfish. He has one DNA sample that he knows comes directly from the bluegill and uses that as his positive control.. He also has three water samples from local water bodies from two region X & Y, but he does not know if they contain bluegill sunfish DNA. To conduct his research, he runs out the positive control DNA and the water samples on a gel. The results is given below.



Find out how many water samples contain bluegill sunfish DNA and explain the reason of determination.

10 marks
