MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS
2018/2019 ACADEMIC YEAR
FOURTH YEAR SECOND SEMESTER

SCHOOL OF TOURISM AND NATURAL RESOURCE MANAGEMENT

BACHELOR OF SCIENCE IN ENVIROMENTAL STUDIES

COURSE CODE: EBH 410

COURSE TITLE: BIOTECHNOLOGY

DATE: 24TH APRIL 2018 **TIME: 1100-1300 HRS**

INSTRUCTIONS TO CANDIDATES

Answer **ALL** questions in section **A** and any other **THREE** in section **B.**

This paper consists of 2 printed pages. Please turn over

SECTION A (ALL questions in section A)

1. Define the following terms:
   a) Bioremediation (1 mark)
   b) Genetic transformation (1 mark)
   c) Transcription (1 mark)
   d) Polyclonal antibody (1 mark)
2. State four benefits of using microorganisms in biotechnology work. (4 marks)
3. (a) State three (3) physical properties of a DNA. (3 marks)

   (b) Describe the functions of the three types of important enzymes used for DNA manipulation. (3 marks)
4. Describe two uses of genomic library. (2 marks)
5. State four (4) advantages of biotechnology in environmental management. (4 marks)

SECTION B (**ANSWER ANY THREE (3) QUESTIONS IN SECTION B**)

6. Discuss the advantages and disadvantages of developing and releasing genetically modified organisms to the environment. (15 marks)
7. (a) Briefly discuss the three steps involved in carrying out polymerase chain reaction. (6 marks)
   (b) Discuss the applications of polymerase chain reaction. (9 marks)
8. Briefly describe the carbon and nitrogen cycles as important biogeochemical cycles for the support of life systems. (15 marks)
9. (a) With the aid of an illustration, describe the monoclonal antibody production process. (10 marks)
   (b) Discuss briefly the application of the hybridoma technology in the field of human health. (5 marks)

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