

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

RESIT/SPECIAL EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE

BMET 222: MICROBIAL PHYSIOLOGY AND GENETICS

STREAMS:

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 03/02/2021

8.30 A.M – 10.30 A.M

INSTRUCTIONS:

Answer Question One and any other Two Questions

Do not write on the question paper

Question One (30 marks)

- a. Describe in detail the carbon requirement of bacteria. (5marks)
- b. Highlight the effects of radiation on microbial growth. (5 marks)
- c. How does the structure of eukaryotic genome differ from that of prokaryotic genome? (5 marks)
- d. Explain the process of DNA repair in a bacterial cell. (5 marks)
- e. Describe in detail the process of gene translation in a bacterial cell. (10 marks)

Question Two (20 marks)

- a. Discuss the process of genetic recombination in bacteria (10 marks)
- b. Give a detailed description of transposons i.e. jumping genes (10 marks)

Question Three (20 marks)

- a. What is an operon and what does it contain? (5marks)
- b. Explain the different types of DNA repair. (5 marks)
- c. Give a detailed description of the entire bacterial growth cycle. (10 marks)

Question Four (20 marks)

- a. Describe the effects of the following 3 environmental factors on bacterial growth. (10 marks)
 - i. Temperature (3 marks)
 - ii. Oxygen (4 marks)
 - iii. Pressure (3 marks)
 - b. Explain in detail the process of gene transcription in bacterial cells (10 marks)
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