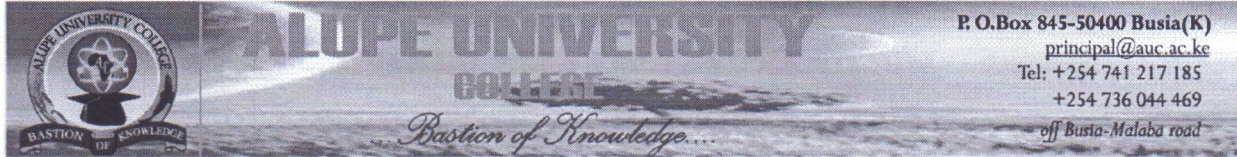


MIC 419



OFFICE OF THE DEPUTY PRINCIPAL
ACADEMICS, STUDENT AFFAIRS AND RESEARCH

UNIVERSITY EXAMINATIONS

2020 /2021 ACADEMIC YEAR

FOURTH YEAR SECOND SEMESTER MAIN EXAMINATION

FOR THE DEGREE OF SCIENCE MICROBIOLOGY

COURSE CODE: MIC 419

COURSE TITLE: MOLECULAR CELL BIOLOGY

DATE: 21ST JULY, 2021

TIME: 08.00 AM – 11.00 AM

INSTRUCTIONS TO CANDIDATES

- SEE INSIDE

THIS PAPER CONSISTS OF 3 PRINTED PAGES

PLEASE TURN OVER

REGULAR – MAIN EXAM

MIC 419: MOLECULAR CELL BIOLOGY

STREAM: BSc. (MICROBIOLOGY)

DURATION: 3 Hours

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INSTRUCTIONS TO CANDIDATES

- i. Answer ALL questions from section A and any THREE from section B.*
 - ii. Diagrams should be used whenever they serve to illustrate the answer.*
 - iii. Do not write on the question paper.*
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SECTION A (24 MARKS)

Question One

- a) Explain the difference between Dark field and Bright field microscopy (4 Marks)
- b) Compare and contrast cilia and flagella in terms structure and roles they play. (4 Marks)
- c) Briefly describe the structure of cytoskeleton of a cell. (2 Marks)
- d) Outline two major molecular differences between DNA and RNA (2 Marks)

Question Two

- a) Give a short description of the salient features of the mitochondria (4 Marks)
- b) Describe the four phases in the synthesis of proteins in Eukaryotes. (4 Marks)
- c) Briefly discuss two important properties of cancer cells. (2 Marks)
- d) What is the role of cellular compartmentalization? (2 Marks)

SECTION B (36 MARKS)

Question Three

- a) Outline two importance of fixation in microtomy (2 Marks)
- b) Describe the process of embedding in tissue preparation for microtomy. (6 Marks)
- c) Outline the post embedding techniques in microtome work. (4 Marks)

Question Four

- a) Describe the molecular components that make up the cell membrane (4 Marks).
- b) Explain why receptor – mediated endocytosis said to be selective than phagocytosis or pinocytosis (5 Marks).
- c) Using examples outline the role of cell junctions. (3 Marks).

Question Five

- a) Explain any two stages of cellular growth. (4 Marks)
- b) Explain in detail the major steps involved in tumor initiation and progression. (8 Marks)

Question Six

- a) Describe the theory of endosymbiosis in reference to the chloroplast (4 Marks)
- b) Outline the steps for preparation of a specimen to be viewed under electron Microscope. (8 Marks)

Question Seven

- a) Compare and contrast eukaryotic and prokaryotic cell. (4 Marks)
- b) Briefly explain why mitosis is called equalization division. (2 Marks)
- c) Discuss various signaling modes used for intercellular communication (6 Marks)
