

**CHUKA UNIVERSITY**  
**UNIVERSITY EXAMINATIONS 2019/2020**  
**FIRST SEMESTER EXAMINATION**  
**BMET 212: MEDICAL CELL AND STRUCTURAL BIOLOGY**

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**INSTRUCTIONS:** *Answer question one and any other two questions*

**Questions**

**Question 1 (Compulsory) (30 marks)**

- a) Explain the difference between keratinocytes and melanocytes. (4 Marks)
- b) Compare and contrast eukaryotic and prokaryotic cell. (4 Marks)
- c) Briefly discuss quality control of a cell cycle. (5 Marks)
- d) Highlight 4 roles of membrane proteins. (4 Marks)
- e) Outline chemical compositions of cell membrane. (4 Marks)
- f) Compare and contrast cilia and flagella in terms structure, location and roles they play. (6 Marks)
- g) Briefly describe the structure of cytoskeleton of a cell. (3 Marks)

**Question 2 (20 marks)**

- a) Describe the basic steps of mitosis. (10 Marks)
- b) Explain in detail the major steps involved in tumor initiation and progression. (10 marks)

**Question 3 (20 marks)**

- a) Describe 5 types of intercellular junctions could be found on the lateral surface of plasma membrane. (10 Marks)
- b) Describe the structural adaptations of the mitochondrion that enable it to carry out its functions in a cell. (10 marks)

**Question 4 (20 marks)**

a) Discuss the role of meiosis genetic recombination. (10 marks)

b) In detail, describe four types of chromosomes according to centromere position. (10 marks)