



W1-2-60-1-6

JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS 2022/2023
YEAR I SEMESTER I EXAMINATION FOR THE DEGREE OF MASTER OF
SCIENCE IN MOLECULAR MEDICINE

TIM 3101: CELL STRUCTURE AND FUNCTION

DATE: SEPTEMBER, 2022

TIME: 3 HOURS

INSTRUCTIONS: Answer Any FOUR Questions (25 Marks each)

Question One

Describe

- i). Experimental evidence that indicates the synthesis of plant vacuoles (10 Marks)
- ii). Multifaceted roles of plant vacuoles (15 Marks)

Question Two

Compare and contrast the structural organization of bacterial and eukaryotic chromosomes (25 Marks)

Question Three

Explain the phenomenon that In all cellular DNAs, regardless of the species, the number of adenine residues is equal to the number of thymine residues (i.e., A=T), and the number of guanine residues is equal to the number of cytosine residue (i.e., G=C) (25 Marks)

Question Four

- i). Vincristine, a common chemotherapeutic agent, is used to treat cancers. Explain its mode of action with respect to cytoskeletal elements (10 Marks)
- ii). Describe the "ATPase cycle" of myosin and relate this cycle to myosin "motor" activity (15 Marks)

Question Five

- i). Describe briefly the structural features of the endoplasmic reticulum and golgi bodies (10 Marks)
- ii). Describe the roles of the Golgi apparatus (15 Marks)

Question Six

Give an account of the distinct processes that RNA undergo during gene expression (25 Marks)