



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

BACHELOR OF SCIENCE IN MEDICAL LABORATORY SCIENCE

AAB 4209: HUMAN GENETICS AND MOLECULAR BIOLOGY (P2)

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: SEPTEMBER 2018

TIME: 2HOURS

DATE: Pick Date Sep 2018

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

a) Differentiate between the following;

i) Leading and lagging replication strands (2 marks)

ii) Rho-dependent termination and Rho-independent termination (2 marks)

iii) Cis-acting regulatory elements and trans-acting regulatory elements (2 marks)

b) Describe the dystrophin gene (5 marks)

c) Outline the causes and effects of Aneuploidy in man (5 marks)

d) Describe the frameshift gene mutation (5 marks)

e) List three differences between meiosis and mitosis (5 marks)

f) Describe the DEAD box gene family (4 marks)

Question TWO

a) Describe the following types of RNA processing (10 marks)

i) mRNA Splicing (5 marks)

ii) 5' Capping (5 marks)

b) Describe the random primed DNA labeling technique (10 marks)

Question THREE

a) Describe the steps in PCR. (10 marks)

b) Highlight the gene families organized in a single cluster (10 marks)

Question FOUR

a) Describe the process of oogenesis in females (10 marks)

b) Describe the stages of the cell cycle (10 marks)

Question FIVE

Describe pericentric inversions chromosomal mutation (20 marks)