



MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2013/2014

FOURTH YEAR FIRST SEMESTR EXAMINATIONS FOR THE
DEGREE OF BACHELOR OF SCIENCE IN MEDICAL
BIOTECHNOLOGY WITH INFORMATION TECHNOLOGY

(MAIN CAMPUS)

PMT 435: PROKARYOTIC AND EUKARYOTIC GENE EXPRESSION

Date: 25th November, 2013

Time: 8.30 - 10.30 a.m.

INSTRUCTIONS:

- **Attempt ALL questions in SECTION A and ANY TWO questions in SECTION B.**
- **Section A carries 40 marks while Section B carries 30 marks.**

PMT 435: PROKARYOTIC AND EUKARYOTIC GENE EXPRESSION

BSC MEDICAL BIOTECHNOLOGY

Date: _____

Time: 2 HOURS

Attempt **ALL** questions in **section A** and any two questions in **section B**. Section A carries 40 marks while section B carries 30 marks.

SECTION A (40 marks)

1. Describe the process of recombination in eukaryotic cells (5 marks).
2. Draw a well labeled diagram of a purine molecule (5 marks).
3. Organelle genomes are much smaller and have limited gene contents. Comment (5 marks).
4. Briefly describe the structure and function of spliceosomes (5 marks).
5. Highlight the major difference between the B and Z DNA structures (5 marks).
6. Suppressor mutation can lead to a functional phenotype. Briefly describe (5 marks)
7. Briefly discuss four applications of karyotyping (5 marks)
8. Write short notes on genomic imprinting (5 marks).

SECTION B (30 marks)

10. Describe the process of alternative splicing in generation of immunoglobulin subtypes (15 marks).
11. Discuss the processes of mRNA translation and regulation in eukaryotes (15 marks).
12. Describe the structure and function of nucleosome (15 marks).