

**W1-2-60-1-6**

## JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

**UNIVERSITY EXAMINATIONS 2017/2018**

**YEAR 3 SEMESTER 1 EXAMINATIONS**

**MMB 2415: MICROBIAL GENETICS**

**DATE: JANUARY 2018 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS**

1a) Define the following terms:- (6 marks)

i) Gene (1 mark)

ii) Translation (1 mark)

iii) Mutant (1 mark)

iv) Phenotype (1 mark)

v) Mutation (1 mark)

vi) Recombinant DNA Technology (1 mark)

b) Briefly describe the bacterial cell structures external to the cell membrane and their functions (6 marks)

c) Highlight the differences between DNA and RNA (6 marks)

d) Briefly describe on Trp Operon (6 marks)

e) Briefly describe the mismatch excision DNA repair mechanism (6 marks)

2) Discuss the central Dogma of molecular biology (20 marks)

3) Discuss gene expression and regulation in prokaryotes (20 marks)

4) Discuss ways in which genetic exchange occurs in prokaryotes

(20 marks)