



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY
SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES
DEPARTMENT OF BIOLOGICAL SCIENCES
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF
SCIENCE IN BIOLOGICAL SCIENCES
3rd YEAR FIRST SEMESTER 2016/2017 ACADEMIC YEAR
MAIN CAMPUS - REGULAR

COURSE CODE:	SBI 3314
COURSE TITLE:	MOLECULAR BIOLOGY
EXAM VENUE:	STREAM: (BSC BIO)
DATE:	EXAM SESSION:
TIME: 2 HOURS	

Instructions:

- 1. Answer ALL questions in Section A and Any two questions in Section B**
 - 2. Candidates are advised not to write on question paper**
 - 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**
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SECTION A: SHORT ANSWER QUESTIONS (30 MARKS)

1. Outline the stages of restriction length polymorphism and state its application in molecular analysis. (3 marks)
2. Distinguish between: (3 marks)
 - (a) Gene translation and gene transcription
 - (b) Genetic code and reading frame
 - (c) Missense and Non-sense mutation
3. Briefly explain the three steps in DNA amplification by polymerase chain reaction. (3 marks)
4. Distinguish between DNA replication in Prokaryotes and Eukaryotes. (3 marks)
5. Briefly describe the process of reverse transcription and retroviral transformation. (3 marks)
6. With aid of a diagram illustrate the structure of any named plasmid used for gene cloning. (3 marks)
7. Name and state the function of any three enzymes in the replication fork. (3 marks)
8. Distinguish between genomic and complementary DNA libraries. (3 marks)
9. Explain how DNA repairs itself upon damage. (3 marks)
10. Briefly explain the process of chromosomal mapping. (3 marks)

SECTION B: ESSAY QUESTIONS (40 MARKS)

11. Describe the procedure for molecular cloning. (20 marks)
12. Discuss the application of recombinant DNA technology. (20 marks)
13. Discuss how DNA sequencing and Bioinformatics have revolutionised the study of Biology. (20 marks)
14. Discuss the process of transcription and translation during protein synthesis. (20 marks)