



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY
SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCES
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE
(BIOLOGICAL SCIENCES)
3rd YEAR 1st SEMESTER 2016/2017 ACADEMIC YEAR
MAIN CAMPUS - REGULAR

COURSE CODE: SBI 3314

COURSE TITLE: MOLECULAR BIOLOGY

EXAM VENUE: CHEM LAB

STREAM: (BIO)

DATE: 27/04/16

EXAM SESSION: 9.00 – 11.00 AM

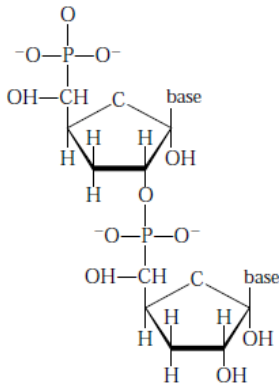
TIME: 2 HOURS

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**

SECTION A: ANSWER ALL QUESTIONS (30 MARKS)

1. List three general characteristics of genetic material. (3 marks).
2. Describe the Hershey and Chase experiment highlighting the logic behind its conclusion that DNA and not protein is genetic material. (3 marks)
3. Explain the contribution of the Meselson and Stahl experiment to present day understanding of DNA replication mechanisms. (3 marks)
4. Assume that the illustration below is of a DNA strand. Highlight any six mistakes you can see. (3 marks)



5. List the modifications that eukaryotic mRNA undergoes during its processing. (3 marks).
6. List the different types of RNAs and state their functions. (3 marks)
7. Describe the concerns of the domains of genomics listed below:
 - a. Structural genomics. (1 mark)
 - b. Functional genomics. (1 mark)
 - c. Comparative genomics. (1 mark)
8. Explain the role of restriction endonucleases in gene cloning. (3 marks).
9. Outline three attributes of plasmids that potential vectors for carrying cloned DNA have. (3 marks)
10. Describe the advantages that cosmids have over plasmids as vectors of choice in gene cloning. (3 marks)

SECTION B: ANSWER ANY TWO QUESTIONS (40 MARKS)

11. Write an essay on DNA replication. (20 marks)
12. Give a detailed account of the process of translation. (20 marks)
13. Discuss the sequencing strategy that was used in the Human Genome Project. (20 marks).
14. Discuss DNA microarrays and Serial Analysis of Gene Expression as techniques used in functional genomics. (20 marks).

