



EMBU UNIVERSITY COLLEGE

(A Constituent College of the University of Nairobi)

2015/2016 ACADEMIC YEAR

FIRST SEMESTER EXAMINATIONS

**SECOND YEAR EXAMINATIONS FOR THE DEGREE OF BSC BIOLOGY AND
BSC GENERAL**

SZL 307/311: MOLECULAR BIOLOGY

DATE: NOVEMBER 30, 2015

TIME: 14:00 -16:00

INSTRUCTIONS:

ANSWER ANY 10 QUESTIONS (7 MARKS EACH)

1. Discuss the steps of constructing cDNA libraries. (7 marks).
 2. State the features of Mitochondrial DNA. (7 marks).
 3. Describe the features of the M13 Bacteriophage (7 marks).
 4. Explain the roles of the following in nucleic acid extraction: (1 mark each).
 - i) Cetyltrimethylammonium bromide (CTAB) buffer
 - ii) RNase.
 - iii) Phenol.
 - iv) Chloroform.
 - v) Lysozyme.
 - vi) Buffers.
 - vii) Incubation at 55 Degrees.
 5. Discuss briefly the known bacterial transduction mechanisms. (7 marks).
 6. Explain how to screen for clones expressing foreign DNA. (7 marks).
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7. Outline the application of protoplast fusion in Biotechnology. (7 marks).
9. Describe the classes of enzymes used in genetic engineering. (7 marks).
10. Outline the structure of DNA in prokaryotes. (7 marks).
11. Discuss the applications of phages in Biotechnology. (7 marks).
12. Describe how plasmids are classified. (7 marks).

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