



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2010/2011

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF
SCIENCE (MICROBIOLOGY) AND BACHELOR SCIENCE (GENERAL) OF
EDUCATION (SCIENCE)

SBT 420: BIOTECHNOLOGY

DATE: Monday 29th November 2010

TIME: 11.00a.m – 1.00p.m

INSTRUCTIONS: Answer All questions in section A and ANY ONE in section B.
Answers in Section A should be concise and should be written in the space provided
in the question paper.

SECTION A: SHORT ANSWER QUESTIONS (5 MARKS EACH)

1. a) Explain what is meant by gene cloning?

- b) Discuss the importance of gene cloning

2.
 - a) Explain what are DNA ligases? How do these enzymes participate in the recombinant DNA technology?
 - b) Explain the role of restriction enzymes in gene technology.

3. Describe the techniques used to improve fermentation process.

4. Highlight the steps involved in somatic hybridization.

5. Outline the distinctions between mutagenesis and genetic engineering.
6. Explain what is meant by the following terms:
 - a) Down stream processing
 - b) Traditional biotechnology
 - c) Totipotent cells

d) Gene Libraries

e) Organogenesis

7. Discuss the techniques used to assess the delivery of transgenes into plants.

8. Discuss how sterile conditions are maintained in tissue culture and their significance.

SECTION B: ESSAY QUESTIONS

1. Discuss the methods used in the production of transgenic plants.
2. Describe the vectors used in gene cloning in plants.
3. Discuss the applications of biotechnology in food processing, medical and agricultural sectors.