



Higher National Diploma in Technology (Agriculture)

Second Year, Second Semester Examination – 2015

AG2213- Principles of Biotechnology.

Instructions for Candidates:

Answer all questions in part I & any two (2) questions from part II

All questions do not carry equal marks.

No. of questions : 05

No. of pages : 03

Time : One and half (1 ½) hours

Index Number:

Part I

Q1. (Total 20 marks)

- i. Define the term “Genetic engineering” (6 marks)

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- ii. Name three industries which are using biotechnology. (6 marks)

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- iii. Name four new tools used in disease diagnosis in biotechnology. (8 marks)

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Q2. (Total 20 marks)

- i. Write the order of nitrogenous bases in the other strand of the DNA double helix structure given below. (6 marks)

A G G - C T C - A A G - T C C

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- ii. What is a “codon”? (6 marks)

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- iii. Give four importance of plant tissue culture. (4 marks)

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- iv. What is a DNA Vaccine? (4 marks)

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PART- II

Q3. (Total 30 marks)

- i. Briefly explain the basic requirements for plant tissue culture. (10 marks)
- ii. Describe the main steps involved in plant tissue culture. (10 marks)
- iii. Explain the problems related to plant tissue culture. (10 marks)

Q4. (Total 30 marks)

- i. Discuss the advantages of biotechnology in relation to agriculture. (10 marks)
- ii. Explain the continuous type bioreactors. (10 marks)
- iii. Briefly explain the term “genetically modified food”. (10 marks)

Q5. (Total 30 marks)

- i. What is recombinant DNA technology? (5 marks)
- ii. Explain the following terms used in biotechnology.
 - a. Restriction enzyme.
 - b. Ligase.
 - c. Polymerase enzyme.(15 marks)
- iv. Describe the basic steps in recombinant DNA technology. (10 marks)