

The Open University of Sri Lanka
Faculty of Engineering Technology
Diploma/Degree in Industrial Studies (Agriculture)
Final Examination- 2009 / 2010



AEI5241 Agricultural Biotechnology

Date : 05 -04 - 2010
Time : 1400-1700 hours
Duration : Three (3) hours.

SECTION II

1. Describe the steps of protein synthesis, beginning with the attachment of a messenger RNA molecule to the small subunit of a ribosome and ending generalized with the release of the polypeptide from the ribosome. Include in your answer a discussion of how the different types of RNA function in this process.

2. By using the techniques of genetic engineering, scientists are able to modify genetic materials so that a particular gene of interest from one cell can be incorporated into a different cell.
 - i.) Describe a procedure by which this can be done.
 - ii.) Describe how you could determine whether the gene was successfully incorporated.
 - iii.) Describe an example of how gene transfer and incorporation have been used in biomedical or commercial applications.

3.
 - a.) Explain the application of biotechnology in Food industry by giving examples of two (02) dairy products.
 - b.) Discuss the importance of single cell protein for human consumption over conventional proteins.
 - c.) Write an essay about the application of biotechnology in paper and pulp industry.

4. a.) Discuss different DNA diagnostic systems and their usefulness in Biotechnology.
- b.) Explain how to work the gene therapy.
5. a.) Compare and contrast vegetative propagation and micro propagation.
- b.) Discuss the facilities and their arrangements if a person wants to start a new tissue culture laboratory for propagating medicinal herbs.
6. Write short notes on any four (4) of the following topics.
 - i. Protoplast culture.
 - ii. Purity and safety of biopharmaceutical.
 - iii. Haploid plant production
 - iv. Production of amino acids through food biotechnology.
 - v. Factors affecting the success of the plant tissue culture