IGNOU

TERM END EXAMINATION JUNE, 2014

PhD LIFE SCIENCES

Applied Microbiology (RLSE-009)

Duration 3 Hours MM:100

Answer any five questions from question nos: 1 to 8. All Questions carry equal marks. Draw well labeled diagram, wherever necessary to support your answer.

1. Describe strategies adopted for the isolation of a suitable industrial microorganism. What are the characteristics of an ideal industrial microorganism? Describe different methods of strain improvement of industrial microorganisms. 20

2. Discuss the various factors that determine the final choice of a raw material in the formulation of a fermentation medium. Discuss any two sources of nitrogen used in fermentation media. 20

3. Differentiate between primary and secondary metabolites. With the help of a diagrammatic representation of microbial growth curve describe as to when primary and secondary metabolites are produced. What are the different uses of these metabolites? 20

4. What is biomining and what are its advantages? What are the different methods of biomining? Discuss the characteristics of microbes used for biomining. 20

5. What is antibiotic resistance? Discuss the mechanism of action and factors contributing to the development of antibiotic resistance in microbes. 20

6. What is Bt technology? What are its advantages and disavantages? Discuss the factors which influence resistance to Bt. 20

7. Describe the upstream and downstream processing operations in industrial microbiology. 20

8. Write short notes on the following: 5x4=20

   a. Bioremediation

   b. Biological unit operation in waste water treatment

   c. Hybridoma Technology

   d. Bioethanol production