



Shahjalal University of Science & Technology, Sylhet
Department of Biochemistry and Molecular Biology
B. Sc. (Hons) 4th Year 1st Semester Final Examination, 2014
Course No. : **BMB -426** Course Title: **Industrial Biotechnology**
Credit: **2.0** Total Marks: **70** Time: **2** Hours

Instructions:

- Number in the right side indicates the marks of the question.
- Marks for each question are same.
- Answer any two (2) questions from each Part (A and B).

PART-A

1. a) What is animal cell culture? Write down the advantages and disadvantages of animal cell culture. 3.5
b) Write down the role of trypan blue, phosphate buffer, bleach, trypsin-EDTA in cell culture. 6.0
c) What is transgenesis? Discuss the methods of transgenesis in animals. 8.0
2. a) Write down the name of different fermenter. Discuss the fed-batch fermentation. 7.0
b) Discuss the basic features of a stirred tank bioreactor. 7.0
c) How can fermentation systems be controlled? 4.0
3. a) What is Bioremediation? Write down the limitations of biodegradability. 3.5
b) Give a list of the following toxic chemical with their uses, sources, effects on human health and environment. 10.0
i) DDT; ii) Parathion; iii) Asbestos; iv) Benzene; v) Arsenic.
c) What are xenobiotics? Discuss the microbial degradation of xenobiotics. 4.0

PART-B

4. a) Diagrammatically explain the protocol which is used to create a XylS protein that is activated by 4-ethyl benzoate. 7.0
b) What is superbug? Demonstrate the development of a bacterial strain which can be used as superbug. 6.5
c) What is anaerobic digestion? Discuss the different stages of anaerobic digestion. 4.0
5. a) What is nutritional labeling? Why it is important? 3.5
b) Justify that- "Government regulation and recommendation is important for food analysis." 4.0
c) Discuss the DNA probe technology for food analysis with its advantages. 5.0
d) Discuss the role of vitamin C on processing of beverages and meat products? 5.0
6. a) Draw a schematic diagram of an immobilized enzyme reactor. 4.0
b) Discuss how pH and temperature affect on enzyme kinetics. 5.0
c) Outline the steps involved in the production and purification of penicillin from the microbial broth. 5.0
d) Write short note on stirred tank reactor. 3.5