Ex/FTBE/T/215/20/2009

BACHELOR OF TECHNOLOGY (F.T.B.E.) EXAMINATION, 2009

(2nd Year, 1st Semester)

MICROBIAL TECHNOLOGY

Time : Three hours Full Marks : 100

(50 marks for each part)

Use a separate Answer-Script for each part.

PART–I

Answer any ***three*** questions.

All questions carry equal marks.

1. What is beer ? What are malt and malt adjuncts ? Why malting of barley is necessary for beer production ? Describe the brewing process for the production of beer ? What is the role of hops in beer production ?

2. Describe the process for development of a high yielding strain for commercial antibiotic fermentation. What are the different stages of Streptomycin fermentation by *S. griseus* ? How streptomycin is recovered from fermentation broth ?

3. With a flow diagram describe the process for the production of red and white wine. What is the importance of aging in wine production ?

4. Discuss the different steps involved in the commercial production of baker's yeast. How compressed and active dry yeast is prepared from yeast cream ?

5. Write short notes on (any *three*) :
   a) Recovery of penicillin from fermentation broth.
   b) Role of lactose in pencillin fermentation.
   c) Strain development in tetracycline production.
   d) Fed batch fermentation.
   e) Sherry and Champagne.

PART–II

Answer any ***three*** questions.
All questions carry equal marks.

6. Discuss the following : 4×4
   a) Bacterial amylases are used for liquefaction of starch in commercial purposes.
   b) Steroid transformation by microbiological process is preferred.
   c) Submerged culture fermentation process is advantageous than surface culture process.
   d) Use of citric acid in different area.

7. What do you mean by 'immobilization of enzyme' ? Immobilized enzymes are popular — explain. Discuss the application of immobilized enzymes in the field of food biotechnology. 3+5+8

8. Discuss in detail industrial preparation of Vit B_{12}. How can you measure Vit B_{12} concentration in fermentation broth ? Point out its uses. 7+7+2

9. Describe the surface culture method of production of citric acid followed by the method of purification. Mention the uses of citric acid in different fields. 8+5+3

10. Write short notes on (any *two*) : 2×8
    a) High fructose syrup.
    b) General method for steroid transformation by fermentation.
    c) Continuous fluidized bed and packed bed reactor.

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