B. Tech.
(SEM. VIII) EXAMINATION, 2006–07
FOOD BIOTECHNOLOGY

Time : 3 Hours] [Total Marks : 100

Note : (1) Attempt all the questions.
(2) All questions carry equal marks.

1 Attempt any four parts of the following : 10×2=20

a) Name some important microbes with their inducers used in food process operations.
b) Give a generalized flow diagram for single cell protein production process.
c) What are the functional properties of single cell protein (SCP) ?
d) What are the main steps involved in the production of edible mushrooms?
e) Give the nutritional aspects of micro-algal single cell protein.
f) What should be the important characteristics of the microorganisms, if they are used in food fermentation?
2 Attempt any **four** parts of the following : $10 \times 2 = 20$

a) Briefly discuss the food additives of fermentation origin.

b) What are the flavour potentiators, explain with suitable examples.

c) Discuss the fermentative production of riboflavin.

d) Give five microbial enzymes used as food additives with their applications.

e) Briefly discuss the production of the microbial colours.

f) Give the temperature effect on milk.

3 Attempt any **two** of the following : $10 \times 2 = 20$

a) Give the applications of amylases in food processing. Name any five microbial enzymes other than amylases used in the food process industries with their applications.

b) What are the various steps involved in the enzymatic hydrolysis of starch? Give the function of amylases in the manufacturing of bread. Also mention some examples of natural food fermentations.

c) Give the role of glucose-oxidase in various food processing industries. What are the various factors affecting the enzymatic action in foods?
4 Attempt any **two** of the following:  \[ 10 \times 2 = 20 \]

a) Give the basic steps involved in the cheese manufacturing. Mention the function of starter cultures. Give the mechanism of action of rennet.

b) Give the effect of proteolytic enzymes on protein quality of foods. Discuss some important enzymatic reactions in food fermentations.

c) How will you classify lipases? Also mention the reactions catalyzed by lipases. Discuss the role of lipases in the oil quality improvement.

5 Attempt any **two** of the following:  \[ 10 \times 2 = 20 \]

a) What are the different types of molasses obtained from sugar industry? Give a complete flow sheet for the production of ethanol from molasses.

b) What are the main enzymes used in the processing of starch? How dextrose is manufactured from starch? Explain with the help of a flow sheet.

c) List the various types of whey beverages. Discuss the pre-treatments of whey while using as a substrate. Mention the environmental conditions for yeast production from whey.