6. Discuss in detail the fermentative process for the production of :-

   (i)   High fructose syrup   7.5

   (ii) Beer.   7.5

7. What are the different types of wastes generated from fruit and vegetable processing industries ? Discuss the various technologies used for the utilization of these wastes along with suitables examples.
                                                                15

8. Define HACCP. Discuss in detail the various principles of HACCP and its role in food industry along with suitable example.   15

SECTION—C

9. (i)   Define fermentation.

   (ii)   Write role of FDA in food industry.

   (iii) Enlist the microorganisms involved in the production of yoghurt.

   (iv)   What is the importance of waste utilization ?

   (v)   Write down the examples of various Indian fermented foods.

   (vi)   What are the different physical methods used for the preservation of food ?

   (vii) Write down the applications of benzoic acid in food industry.

   (viii) Define Z-value.

   (ix)   Write down the application of Codex alimentarius in food sector.

   (x)   What are recombinant vaccines ? $10 \times 1.5 = 15$

PC 13192-N

L-15/2111
MICROBIAL AND FOOD TECHNOLOGY-X
Semester- III

Time Allowed : Three Hours]   [Maximum Marks : 75

Note :— Candidates is required to attempt **two** questions each from Section A & B. Section C is compulsory.

SECTION—A

1. What do you mean by microbial transformation ? Discuss in detail the applications of microbial transformations in biotechnology along with suitable examples.   15

2. Discuss in detail the fermentative production of amino acids along with a suitable flow diagram.   15

3. What are microbial polysaccharides ? Give examples. Discuss the production of any two microbial polysaccharides along with the sources involved.   15

4. Write short notes on :-

   (i)   Steroid transformations   7.5

   (ii) Fermentative production of vitamin B-12.   7.5

SECTION—B

5. Define food irradiation process. Discuss in detail the various sources, effects, advantages and limitations of food irradiation process.   15