

GUJARAT TECHNOLOGICAL UNIVERSITY**B.E. Sem-IV Examination June- 2010****Subject code:141402****Subject Name: Food and Industrial Microbiology****Date: 17 / 06 /2010****Time: 10.30 am – 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 (a) Enlist Various Chemical Preservative used in food. Explain Organic acids and their salts in detail along with their permitted limit as per PFA in various food products. **07**

(b) Define following Terms : **07**

1. Hydrogen swell	5. Radurization
2. Gamma Rays	6. 12 D concept
3. Immobilized Enzyme	7. Aflatoxin
4. Z Value	

Q.2 (a) Write following statements are true or false and rewrite the false statement. **07**

- 1 Mold is unicellular whereas yeast is multicellular.
- 2 Nitrite is use as a preservative in preventing ropiness in bread.
- 3 *Aspergillus repens* is associated with the formation of mold button defect in sweetened condensed milk.
- 4 *Serratia marcescens* is the organism that impart red colour on starchy food like flour.
- 5 *Saccharomyces cerevisiae* are commonly used for ethanol production from carbohydrate fermentation.
- 6 *Aspergillus flavus* is used for production of Soy sauce and Miso.
- 7 *Rhizopus stolonifer* is the chief bacterial species involved in the spoilage of bread.

(b) Name yeast used in brewing process and explain brewing process in detail. **07**

OR

(b) Explain mouldiness and ropiness in bread and list causitive agent for both. **07**

Q.3 (a) Explain microbial spoilage of milk and milk products along with the specific organism related with it. **07**

(b) Explain in detail sterilization of air and list down the points to be taken care while designing of air filter. **07**

OR

Q.3 (a) Microorganisms are useful or harmful to food Industry? Justify your answer with suitable example. **07**

(b) List down all techniques of maintaining cultures and explain any three in detail. **07**

- Q.4** (a) Write short note on Baker's yeast along with suitable diagram for its production. **07**
(b) List various criteria for selection during recovery of various fermentation products. Enlist various methods used for it. **04**
(c) List down the points to be taken care while sterilization and maintaining sterile condition in equipment. **03**

OR

- Q.4** (a) Explain various ways for introducing air into fermentation vessel. **04**
(b) Write in detail regarding centrifugation and membrane filtration as means to recover fermentation product. **03**
(c) Write down the mean composition of fruits and vegetables. Write different spoilage conditions along with the causative organisms in fruits and vegetables. **07**

- Q.5** (a) Explain in detail continuous stirred tank fermentor (CSTF) with suitable diagram. **06**
(b) Write short note on Botulism, Staphylococcal Intoxication and Salmonellosis. **06**
(c) Explain : Single Cell Protein **02**

OR

- Q.5** (a) Write in detail regarding Low and High acid canned-food spoilage. List permitted dosage of radiation for various food as per PFA. **07**
(b) What is Fed-batch culture. Explain various fed batch culture system and its application with suitable example. **07**
