Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- IVth SEMESTER–EXAMINATION – MAY/JUNE- 2012

Subject code: 141402 **Date: 23/05/2012**

Subject Name: Food and Industrial Microbiology

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)** Match the following : **07**

Clostridium botulinum	72 ºC for 15 sec
Penicillium digitatum	121 ºC for 15 min
Aspergillus repens	Ropiness in milk
Rhizopus stolonifer	Blue mold Rot
Alcaligenus viscolactis	Botulism(Food Intoxication)
HTST Pasteurization	Mold button in SCM
Sterilization	Spoilage of bread

(b) Explain in detail use of drying for food preservation. **07**

Q.2 **(a)** What is food poisoning? Define and explain bacterial food infection and bacterial food intoxication by any two bacteria. **07**

(b) Explain technique for isolation and preservation methods for industrial important microorganisms. **07**

OR

(b) What are ideal characteristics of medium for fermentation processes? Write role of ingredients used in fermentation. **07**

Q.3 **(a)** What is application of radiation in food preservation? Discuss its effect on quality of food with legal requirement. **07**

(b) Write short note on Single cell protein. **03**

(c) What are different categories of inoculums, discuss any one method for spore development for inoculation **04**

OR

Q.3 **(a)** Explain vinegar (Acetic acid) production by fermentation in detail. **07**

(b) Enlist major types of fermenters and discuss continues stirred tank fermenter. **07**

Q.4 **(a)** List characteristics of an ideal antimicrobial preservative. Explain Propionate, Sorbate and Benzoate as food preservative. **07**

(b) List various types of spoilage organisms in milk with their spoilage condition. **03**

(c) Explain recovery process of citric acid from fermentation broth **04**

OR

Q.4 **(a)** Explain spoilage of canned food by mesophilic spore forming bacteria and non spore forming bacteria. **07**

(b) Explain parameters tested in secondary screening microorganism. **03**

(c) Discuss filtration technique and factors affecting on it in separation of biomass from fermentation broth **04**

Q.5	**(a)**	What are essential general features of an ideal fermenter?	**06**
	(b)	Effect of Quick freezing and slow freezing on microorganisms.	**04**
	(c)	Brief IMF along with techniques used to change $a_{w.}$	**04**

OR

Q.5	**(a)**	Discuss processing and role of each components in the beer fermentation	**06**
	(b)	Brief about 12 D concept in canned food preservation.	**04**
	(c)	List two bacterial and two yeast fermented food along with organisms used for it.	**04**

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