



Name :

Roll No. :

Invigilator's Signature :

CS/B.Tech(FT)(OLD)/SEM-3/FT-301/2012-13

2012

FOOD MICROBIOLOGY

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : $10 \times 1 = 10$
 - i) Which one among the following is a spore former ?
 - a) *Clostridium botulinum*
 - b) *Micrococcus caseolyticus*
 - c) *Salmonella typhi*.
 - ii) Which one is a physical anti-microbial agent among the following ?
 - a) Citric acid
 - b) Irradiation
 - c) Alcohol.
 - iii) Which among the following is a pathogen ?
 - a) *Rhizopus oryzae*
 - b) *Saccharomyces cerevisiae*
 - c) *Clostridium botulinum*.



- iv) Which one of the following is a better source for amylase producer ?
- a) Air
 - b) Soil
 - c) Sea water.
- v) Which of the following methods does not control the growth of micro-organisms ?
- a) Fermentation
 - b) Filtration
 - c) Heat treatment.
- vi) Salmonellosis is caused by a
- a) Virus
 - b) Bacteria
 - c) Mold
 - d) Protozoa.
- vii) Thermal death point is the temperature necessary to kill all the organisms in
- a) 1 min
 - b) 10 min
 - c) 15 min
 - d) none of these.
- viii) HTST Pasteurization process is done at
- a) 72°C for 15 sec
 - b) 121°C for 15 min
 - c) 137.8°C for 2 sec
 - d) none of these.
- ix) Aflatoxin is produced by
- a) Lactobacillus
 - b) Penicillium
 - c) Saccharomyces
 - d) None of these.



x) All of the following organisms cause contamination of milk *except*

- | | |
|------------------|-------------|
| a) Lactobacillus | b) Bacillus |
| c) Streptococcus | d) Amanita. |

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. What are the differences between pasteurization and sterilization ?
3. What are the main sources of contamination of fresh milk ?
4. Why is egg stored at low temperature ?
5. How can vegetables be preserved by fermentation ? What is Sauerkraut ?
6. What types of organisms are responsible for spoilage of Jams, Jellies and Marmalades ?

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. Which are the factors affecting the thermal inactivation of micro-organisms ? Elaborate the concepts of different terms in this connection and their importance. $6 + 9$
8. Discuss the concept of pasteurization as applied to milk. Why is milk pasteurized at higher temperature for butter making ? Which is the organism responsible for red milk ? What are the factors responsible for preservation of sweetened condensed milk ? $5 + 3 + 2 + 5$



9. What are the sources of contamination for fruits after harvesting ? Which preliminary processing steps reduce the microbial load ? Discuss the factors responsible for the preservation of jams. What is the expected microbial load of fruit juice ? 4 + 3 + 4 + 4
10. Taking the example of an egg/a cereal grain, discuss how the natural barriers resist the invasion of microbes and the factors likely to reduce this resistance. Which are the factors controlling the growth of micro-organisms in fresh meat or fish ? 5 + 3 + 7
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