

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -2 EXAMINATION- APRIL-2023

COURSE CODE(CREDITS): 21MS1MB411(03)

MAX. MARKS: 25

COURSE NAME: Food and Dairy Microbiology

COURSE INSTRUCTORS:Dr Anil Kant, Dr V. Garlapati MAX. TIME: 1 Hour 30 Minutes

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Q.1

A) Demonstrate your understanding about the parameters n , c , m , M used by "International commission on microbiological specification for food" in sampling plans.

[2.0]

B) Let in a specific sampling plan $n=10$, $c = 5$, $m = 4 \times 10^7/\text{ml}$, $M = 8 \times 10^7/\text{ml}$. What would be your decision regarding acceptance or rejection of a food sample, having the following experimental values. Give valid reason for your decision.

- i. 4 Sampling Units having microbial load $> 4 \times 10^7/\text{ml}$, No Sampling Unit having microbial load $> 8 \times 10^7/\text{ml}$
- ii. 3 Sampling Units having microbial load $> 4 \times 10^7/\text{ml}$, One sampling Unit having microbial load $> 8 \times 10^7/\text{ml}$
- iii. 6 Sampling Units having microbial load $> 4 \times 10^7/\text{ml}$, No sampling Unit having microbial load $> 8 \times 10^7/\text{ml}$
- iv. 1 Sampling Units having microbial load $> 4 \times 10^7/\text{ml}$, One sampling Unit having microbial load $> 8 \times 10^7/\text{ml}$

[4.0]

Q.2

- A. Write about key characteristics, important species and significance of any three of following genera of organisms, in food and food environments i) *Yersinia* ii) *Streptococcus* iii) *Clostridium* iv) *Leuconostoc* v) *Tetragenococcus* [4.5]
- B. Figure out any three distinct differences *Lactococcus lactis subsp. lactis* and *L. lactis subsp. cremoris* in term of physiological traits w.r.t. dairy fermentations [1.5]

Q.3

Extract out four distinct points, why molds hold a great importance in food. Write about following mold / yeast genera. i) *Yeast* ii) *Penicillium* and *Aspergillus*. Include key characteristics, important species, their importance in food or food environments.

[5.0]

Q.4

1. How does "Nutraceutical" differ from "Pharmaceutical"? [2.0]
2. Mention the different fraction of enzymatic, immunoglobulin and casein fractions of milk along with their physiological functions? [3.0]
3. Differentiate the fermented milk "SKYR" with "LEBEN" in terms of composition and manufacturing approach? What are the different health benefits associated with "Yogurt" [3.0]