JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -3 EXAMINATION- 2024
M.Sc-IV Semester (Microbiology)

COURSE CODE(CREDITS):21MS1MB411(03) MAX. MARKS: 35
COURSE NAME: Food and Dairy Microbiology
COURSE INSTRUCTORS: Dr Anil Kant, Dr V. Garlapati MAX. TIME: 2 Hours

Note: (a)All questions are compulsory.
(b)Marks are indicated against each question in square brackets.
(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.1 Do any three of following [3x3=9]

a. What are lactic acid bacteria? Identify their general characteristics? Enlist seven genera of Lactic acid bacteria along with their significance in food and food environments.
b. Write a brief note on sampling of food samples for microbiological examination? Include information about, sample size, procedure sample storage and transport.
c. Explain the principle and method of examining bacteriological quality of milk by Methylene blue reduction test or Resazurin test. Also mention standards of milk as per time required for disappearance of blue color in MBRT test of color outcome in case of Resazurin test.
d. What should be the strain selection criteria for bread fermentation? Mention bread ingredients used to achieve following characteristics in bread making i) improvement of dough structure ii) Weakening of dough structure iii) As a process aid in mixing
e. Identify and elaborate on the steps involved in Koji manufacturing? Figure out the difference between Koji and Tane koji.

Q.2

a. Let in a specific sampling plan n=12, c = 4, m = $4x10^7$/ml, M = $8x10^7$/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. 3 Sampling Units having microbial load >_ $4x10^7$/ml, No Sampling Unit having microbial load >_ $8x10^7$/ml
   ii. 2 Sampling Units having microbial load >_ $4x10^7$/ml, One sampling Unit having microbial load >_ $8x10^7$/ml
   iii. 6 Sampling Units having microbial load >_ $4x10^7$/ml, No sampling Unit having microbial load >_ $8x10^7$/ml
   iv. 1 Sampling Units having microbial load >_ $4x10^7$/ml, One sampling Unit having microbial load >_ $8x10^7$/ml

[5]

Q.3 Explain following method of estimation microorganisms in food /milk samples along with their advantages and disadvantages i)Direct microscopic count on slide ii))Direct microscopic count using specially constructed chambers) iii) Dilution to Extinction

[9]

P.T.O

Q.4. Write about the following one's [3 x4 = 12]

a. Technical and market drivers for biotechnological flavor production
b. Flavours Vs Flavour Enhancers Vs Nutrient supplements with two examples each
c. Counter current extraction Vs Spinning cone column in Flavour extraction
d. Abbreviate and mention location of the culture collections of "NCIM" and "NCIB"? How do the "Liquid", "Different freeze-dried forms" of starter cultures propagate in the dairy? Emphasize with a neat sketch.