GURU NANAK INSTITUTE OF TECHNOLOGY

An Autonomous Institute under MAKAUT

2022

FOOD MICROBIOLOGY

FT302

TIME ALLOTTED: 3Hours **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)

Answer any ***ten*** from the following, choosing the correct alternative of each question: **10×1=10**

		Marks	CO No
1. i)	NaCl can act _____.	1	CO1
	a. Transporting nutrients		
	b. Antagonist at optimal concentrations		
	c. Synergistically if added in excess of optimum level		
	d. Both a and b		
ii)	Which of the following is not a type of β-lactam antimicrobial?	1	CO2
	a. Penicillins		
	b. Glycopeptides		
	c. Cephalosporins		
	d. Monobactams		
iii)	Which of the following organisms is used in alcoholic fermentation?	1	CO3
	a. Pseudomonas		
	b. Aspergillus		
	c. Saccharomyces		
	d. Penicillium		
iv)	The most spoilage bacteria grows at _____.	1	CO4
	a. Acidic Ph		
	b. Neutral pH		
	c. Alkaline pH		
	d. All of the above		
v)	The microbiological examination of coliform bacteria in foods preferably use_____.	1	CO1
	a. Mac Conkey broth		
	b. Violet Red Bile agar		
	c. Eosine Methylene blue agar		
	d. All of the above		
vi)	Most Common probiotics other than Lactobacillus in milk products.	1	CO2
	a. Lactococcus		
	b. L. acidophilus		
	c. Lactobacillus plantarum		
	d. Lactobacillus reuteri		

vii) The most common virus found in poultry which is hazardous to human health — 1 — CO3
   a. Campylobacter
   b. Brucella
   c. Listeria
   d. None of these

viii) What are the intrinsic factors for microbial growth? — 1 — CO4
   a. pH
   b. Moisture
   c. Oxidation-Reduction Potential
   d. All of the above

ix) Plate count of bacteria in foods generally uses the plating medium consisting of _____. — 1 — CO1
   a. Peptone, glucose, sodium chloride, agar and distilled water
   b. Yeast extract, glucose, sodium chloride, agar and distilled water
   c. Peptone, yeast extract, glucose, sodium chloride and distilled water
   d. Peptone, yeast extract, glucose, sodium chloride, agar and distilled water

x) The portion of the growth curve where rapid growth of bacteria is observed is known as _____ — 1 — CO2
   a. Lag phase
   b. Logarithmic phase
   c. Stationary phase
   d. Decline phase

xi) In the growth equation: n = 3.3 (log10 N – log10 No), n stands for _____ — 1 — CO3
   a. total population
   b. initial population
   c. number of generations
   d. growth constant

xii) During exponential phase, growth rate is _____ — 1 — CO4
   a. same as generation time
   b. reciprocal of generation time
   c. time required for population to double
   d. rate of doubling population

GROUP – B
(Short Answer Type Questions)
(Answer any *three* of the following) **3 x 5 = 15**

		Marks	CO No
2.	Describe the bacterial endospore formation cycle with a neat diagram.	5	CO3
3. a.	Name three industrially important yeast and their function.	3	CO2
b.	Name two gram negative pathogenic bacteria and the diseases they cause.	2	CO2
4.	Describe various sources of organic and inorganic contaminants in food.	5	CO4

5.	Describe the full pasteurization process with a proper diagram.	5	CO3
6.	Differentiate between SEM and TEM and discuss the working principal of both.	5	CO2

GROUP – C
(Long Answer Type Questions)

(Answer any *three* of the following) **3 x 15 = 45**

		Marks	CO No
7. a.	Describe the full Sterilization process by an autoclave with a proper diagram.	10	CO2
b.	"Reduction of moisture content helps to preserve foods"-- Justify the statement.	3	CO2
c.	Discuss what is spoilage of food means?	2	CO2
8. a.	What are the target points of microbial inactivation? Explain antimicrobial agents work.	7	CO4
b.	Describe the process of chemical disinfection.	8	CO4
9. a.	Define TDT, TDP, F, Z and D value.	10	CO 2
b.	Predict the approximate shelf-life (i.e. the time to spoilage) of milk stored at 5 °C. Given, mean population doubling times at 5 °C: psychrotrophic bacteria, 6 h; lactic acid bacteria, 8 h. Spoilage levels: psychrotrophic bacteria, 10^7 cfu ml^{-1}; lactic acid bacteria 10^8 cfu ml^{-1}. Initial bacterial count was 10^2 cfu ml^{-1}.	5	CO 2
10.	Write Short note: (Any three)	3x5=15	
a.	Coliform bacteria	5	CO2
b.	Salmonellosis	5	CO2
c.	Baker's yeast	5	CO1
d.	Mechanism of action of any antibiotic	5	CO4
e.	Botulism	5	CO3
11. a.	Classify microorganisms.	5	CO1
b.	Draw and label a cross section of a bacterial cell.	5	CO1
c.	Differentiate between prokaryotic and eukaryotic cells.	5	CO1