

2023

**FOOD PROCESSING & QUALITY
MANAGEMENT/ FOOD PROCESSING
TECHNOLOGY**

Paper : FPM/FPT-VC-3036

(Food Microbiology)

Full Marks : 60

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

1. Answer the following questions : 1×7=7

(a) Study of algae is known as _____.

(b) Who is known as the father of microscope?

Choose the correct answer for the following :

(c) Water activity can act as

(i) an intrinsic factor determining the likelihood of microbial proliferation

(ii) a processing factor

(iii) an extrinsic factor

(iv) All of the above

- (d) Yeast and mould count determination requires
- (i) nutrient agar
 - (ii) acidified potato glucose agar
 - (iii) MacConkey agar
 - (iv) violet red bile agar
- (e) The principal microorganism for yogurt is
- (i) *Streptococcus thermophilus*
 - (ii) *Leuconostoc citrovorum*
 - (iii) *Lactobacillus acidophilus*
 - (iv) *Streptococcus lactis*
- (f) Which of the following is a Gram-positive bacterium?
- (i) *Proteus vulgaris*
 - (ii) *Salmonella typhi*
 - (iii) *Listeria monocytogenes*
 - (iv) *Shigella dysenteriae*

(3)

(g) The primary bacterial spoilage of poultry meat at low temperature with characteristic sliminess at the outer surface is caused by

(i) *Pseudomonas* spp.

(ii) *Aspergillus* spp.

(iii) *Bacillus* spp.

(iv) *Candida* spp.

2. Answer the following questions : 2×4=8

(a) What do you mean by microorganism? List the types of bacteria according to their shapes.

(b) Write down the difference between basic dye and acidic dye.

(c) What do you mean by Z-value and F-value?

(d) Define sterilization. Write down the different types of sterilization.

3. Answer any *three* of the following questions : 5×3=15

(a) Write down the construction and working principles of compound microscope.

(4)

(b) What do you mean by media? Write down the different types of media.

2+3=5

(c) What are the factors affecting the growth of microorganism? Explain those.

(d) What is the importance of microbiology? Discuss the scopes of microbiology in different fields.

(e) What do you mean by foodborne illness? What are the types of foodborne illness? Explain those with examples.

2+3=5

4. Answer the following questions : 10×3=30

(a) Write down the different types of microscope with their working principles.

OR

What do you mean by staining? Define different types of staining. Write the basic principle of Gram staining and explain Gram staining process.

2+4+4=10

(5)

- (b) Classify microorganisms. Describe the morphology of fungi. List the characteristics that are common in bacteria and fungi.

2+5+3=10

OR

What do you mean by thermal death time? How does temperature influence the growth of microbes? Explain it.

2+8=10

- (c) Define microbial food spoilage. What are the sources of microorganisms in food? Why is it necessary to decontaminate the glassware and dispose off the microbes?

2+3+5=10

OR

Write short notes on the following :

2+2+2+2+2=10

- (i) Autoclave
- (ii) Pour plate
- (iii) Serial dilution
- (iv) Laminar airflow
- (v) Incubator

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