

U.G. 6th Semester Examination - 2021

MICROBIOLOGY

[HONOURS]

Course Code : MB-H-CC-L-14

(Food and Industrial Microbiology)

Full Marks : 40

Time : 2½ Hours

The figures in the right-hand margin indicate marks.

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

1. Answer the following questions : 1×10=10
- i) What do you mean by fermentation parameter?
 - ii) What is sparger?
 - iii) Which bacteria are used for production of industrial ethanol?
 - iv) What is the importance of Vitamin B₁₂ in human health?
 - v) Why are probiotics prescribed following antibiotic treatment?
 - vi) What are the sources of γ rays used for food irradiation?

- vii) What are the causative organisms for ropiness of milk?
- viii) What is the importance of SO₂ in food industry?
- ix) What is used as starter culture for soy sauce preparation?
- x) Why is the lowering of pressure required for lyophilization?

2. Answer any **five** of the following: 2×5=10
- i) What are the large scale uses of commercially manufactured amylases?
 - ii) What is the industrial application of site directed mutation?
 - iii) Why is corn steep liquor the preferred substrate for penicillin production?
 - iv) What is fed batch culture? What is its use?
 - v) Which factors regulate amount of dissolved oxygen in fermentation media?
 - vi) What are the differences between soft and hard cheese?
 - vii) What are the major mold species involved in spoilage of bread?

3. Answer any **four** of the following: $5 \times 4 = 20$

i) Write a brief note on application of biological products in food preservation. Name some probiotic foods available in market. $4+1$

ii) By what ways, canned food can exhibit spoilage and intoxication? Briefly discuss ergotism.

$2\frac{1}{2} + 2\frac{1}{2}$

iii) Describe different parts of a typical bioreactor with labelled diagram. How can you modify it for anaerobic fermentation? $3+2$

iv) Discuss the fermentation and downstream process for large scale production of microbial biopolymers. 5

v) How would you detect if a milk sample is pasteurized? Why do you need to preserve pasteurized milk under refrigeration? $3+2$

vi) Compare the fermentation process and health benefits of yogurt and acidophilus milk. How does water activity (a_w) affect food quality?

$3+2$
