

**WEST BENGAL STATE UNIVERSITY**

B.Sc. Honours/Programme 2nd Semester Examination, 2022

**MCBHGE02T/MCBGCOR02T-MICROBIOLOGY (GE2/DSC2)**

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.  
Candidates should answer in their own words and adhere to the word limit as practicable.  
All symbols are of usual significance.*

**Answer Question No. 1 and any *four* questions from the rest**

1. Answer any *four* questions from the following: 2×4= 8
  - (a) Define the term 'Spoilage'.
  - (b) Differentiate between food-borne disease and food intoxication.
  - (c) Name two secondary metabolites.
  - (d) What is the advantage of continuous culture?
  - (e) What are the roles of lactic acid bacteria in food preservation?
  - (f) What do you mean by starter culture?
  - (g) What are the industrial uses of citric acid?
  - (h) Write down the beneficial role of probiotics.
2. (a) How are fresh vegetables disinfected? 2+2+4
  - (b) How will you experimentally prove that a milk sample is pasteurized or not?
  - (c) How is cheese processed by microbial activities?
3. (a) Define batch culture. 2+3+3
  - (b) Distinguish between batch culture and continuous culture.
  - (c) What are 'iodophase' and 'ideophase'?
4. (a) "Milk is an excellent media for microbial growth" — Justify the statement. 2+2+(2+2)
  - (b) What are the possible causes of spoilage of canned food?
  - (c) How do osmotic pressure and low temperature help in the food preservation?
5. (a) Why is the pH of the medium an important factor in penicillin fermentation? 2+(1½+1½)+3
  - (b) Give two examples of industrially important microbial strains for the production of amylase and protease in each case.
  - (c) Write a short note on botulism.

6. (a) What do you mean by primary and secondary screening of industrially important microorganisms? (2+2)+2+2  
(b) What are the ingredients used in corn steep liquor fermentation medium?  
(c) Name two microorganisms involved in egg spoilage.
7. (a) Write a short note on the essential features of an ideal industrial fermenter. 3+2+3  
(b) What is "Head space"?  
(c) Differentiate between solid state fermentation and liquid state fermentation.
8. (a) What do you mean by downstream processing? Explain briefly. 3+2+1  $\frac{1}{2}$  +1  $\frac{1}{2}$   
(b) How do industrial microorganisms differ from conventional microorganisms?  
(c) What do you mean by ropiness of milk?  
(d) Which types of food infection is caused by *salmonella* sp.?
9. (a) What is fed-batch fermentation? 2+3+(1  $\frac{1}{2}$  +1  $\frac{1}{2}$ )  
(b) Differentiate between laboratory fermenters and pilot-scale fermenters.  
(c) How do ethylene oxide and sodium benzoate help in food preservation?

**N.B. :** *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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