



**WEST BENGAL STATE UNIVERSITY**

B.Sc. Honours/Programme 2nd Semester Examination, 2021

**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) What are the uses of amylase that are produced in large scale?
  - (b) What happens during ripening of cheese?
  - (c) What is blanching?
  - (d) State the function of baffles used in bioreactors.
  - (e) What do you mean by primary and secondary screening?
  - (f) Name two microorganisms involve in egg spoilage.
  - (g) What do you mean by water activity ( $A_w$ )?
  - (h) Briefly state about scale up process.
  
2. (a) Write down the purpose of series of impeller paddle and stationary wall baffles in continuously stirred type bioreactor. 2×4 = 8
  - (b) Give examples of each of a primary metabolite and a secondary metabolite.
  - (c) Write down the technologies that are used in strain improvement.
  - (d) What are the differences between fermenter and bioreactor?
  
3. (a) State the three most important features of solid-state fermentation (SSF). 3+3+2 = 8
  - (b) What are the advantages of SSF?
  - (c) Mention the names of two products obtained by SSF.
  
4. (a) How does hydrogen ion concentration act as one of the major intrinsic factors of microbial growth in food? 3+2+2+1 = 8
  - (b) Mention the names of two inhibitory substances that inhibit the growth of microorganisms in food.

- (c) Mention the names of two microorganisms from different groups that cause bread spoilage.
- (d) What is Redox potential (**Eh**)?
5. (a) What is acidophilus milk? Schematically represent the preparation of acidophilus milk. (1+3) +  
(2+2) = 8
- (b) Define probiotics. Write about the beneficial aspects of probiotics.
6. (a) Rohan eats a cream filled pastry on his way back home. After 2-3 hours he complains of diarrhoea but he is fine in the next day. (1+3+2)  
+ 2 = 8
- (i) Which microbe do you think was responsible for the diarrhoea?
- (ii) Write briefly about the morphology and characteristics of the microbe.
- (iii) Would you classify it as intoxication or infection? Justify your answer.
- (b) Write briefly about HACCP.
7. (a) How is radiation useful in food preservation? 2+2+4 = 8
- (b) Which foods can be preserved by low temperature?
- (c) What are the mechanisms of action of ethylene oxide and sodium benzoate used for food preservation?
8. (a) Explain the important roles of lactic acid bacteria in fermented milk products. 2+4+2 = 8
- (b) Write about the food intoxication by *Clostridium botulinum*.
- (c) How *E. coli* plays role in food infection?
9. (a) What is canning? 2+4+2 = 8
- (b) Briefly explain about the steps of canning process.
- (c) Why does meat spoil very fast?

**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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