WEST BENGAL STATE UNIVERSITY

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

MCBHGEC02T/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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