'समानो मन्त्रः समितिः समानी'

UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 5th Semester Examination, 2021

CC11-MICROBIOLOGY

Time Allotted: 2 Hours | Full Marks: 40

The figures in the margin indicate full marks.

1. Answer any ***five*** of the following: 1×5 = 5

   (a) Name an organism used for industrial production of lipases.
   (b) What is the source of sulphite waste liquor?
   (c) What is enzyme encapsulation?
   (d) What is lyophilization?
   (e) What is the precursor used for industrial production of penicillin?
   (f) Give an example of antimicrobial agent used in wine production.
   (g) What is fed batch culture?
   (h) Define SmF and SsF.

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

   (a) Write a brief note on downstream processing of Vitamin B_{12}. 5
   (b) Briefly describe about airlift fermenter. 5
   (c) What is enzyme immobilization? State the application of immobilized enzymes. 2+3
   (d) How the measurement and control of foaming and dissolved oxygen done in a bioreactor? $2\frac{1}{2}+2\frac{1}{2}$
   (e) Briefly describe the methods used for the maintenance of microbial cultures. 5

3. Answer any ***two*** of the following: 10×2 = 20

   (a) What is malting? Briefly discuss the industrial production of beer. Give a brief description of recovery of citric acid after production. 1+5+4
   (b) With suitable example, illustrate how filtration and centrifugation helpful in downstream processing of fermented industrial products. 5+5
   (c) Citing suitable example, describe how industrially important microorganims are isolated from different sources. State some important criteria used to select industrially important microbes. 6+4
   (d) Write short notes on: 5+5
      (i) Constantly stirred tank fermenter
      (ii) Various method of microbial cell disruption for intracellular product recovery.

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