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**PG CBCS**  
**M.Sc. Semester-IV Examination, 2022**  
**BOTANY**  
 PAPER: BOT 403D (SPL PAPER)  
 (MICROBIOLOGY-APPLIED)

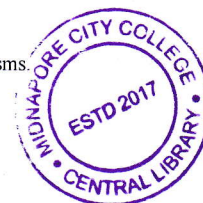
Full Marks: 40

Time: 2 Hours

The figures in the right-hand margin indicate full marks.  
 Candidates are required to give their answers in their own words as far as practicable.

**GROUP-A****1. Answer any two of the following:****4×2=8**

- a) Why are the air conditions unfavorable for the microorganisms?
- b) What is acidophilus milk? What are the microbes usually used for its production? 1+1
- c) Give two examples of enzymes and their application used in commercial purposes.
- d) What does it mean by blue cheese?
- e) Name two nucleotides and two protein databases.
- f) Write the disease-causing soil borne, waterborne and airborne microorganisms.
- g) Define activated sludge
- h) Differentiate between homolactic and heterolactic fermentation.

**GROUP-B****2. Answer any four of the following:****4×4=16**

- a) Write down the different steps of biogas production.
- b) Show pathways for industrial production of citric acid by a flow digram.
- c) What is the mechanism behind the production of bt-cotton?
- d) What are biofertilizers? What are the benefits of biofertilizers over chemical fertilizers?  
1+1+2
- e) State the selection criteria of probiotic strain. How do probiotic bacteria lower the cholesterol?  
2+2
- f) Why do you need database search in bioinformatics? What is multiple sequence alignment?  
2+2
- g) Write a short note on epidemiology 4
- h) Differentiate between submerged fermentation and solid- state fermentation. 4

(P.T.O.)



(2)

**GROUP-C**

**3. Answer any two questions of the following:**

**8×2=16**

- a) With a suitable diagram describes different parts and their functions of a fermenter. Give an example of yeast and bacteria used in commercial ethanol production. 2+4+2
- b) What does it mean by bioleaching? Briefly describe the process of copper bioleaching with proper diagram. What are the different factors that influence the bioleaching process? 1+6+1
- c) What are xenobiotics? Give detailed idea about biopolymers. Mention microorganisms involve in degradation of xenobiotics and petroleum products. 2+2+4
- d) Write note on DNA vaccine. Mention the process for preparation of monoclonal antibody. 4+4

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