

PG CBCS
M.SC. Semester-IV Examination, 2021
BOTANY
PAPER: BOT 403D
(MICROBIOLOGY- APPLIED)

Full Marks: 40

Time: 2 Hours

Answer any FOUR questions from the following:

10 x 2 = 20

1. What do you mean by bioplastic? Cite examples. Briefly describe the synthesis and degradation process of polyhydroxybutyrate (PHB). Mention the mechanism of action of Bt toxin. (1+1)+5+3
2. Schematically represent lactic acid production by bacteria. Why copper and ferrous are essential in citric acid production? Give two applications citric acid. Why biotin limited condition is required in L-glutamate production? 4+(2+2)+2
3. State the process of penicillin production. Write down the properties of an industrially important microorganism. Write down different parts of a bench top bioreactor. 4+3+3
4. Name the toxin produced by enterotoxigenic *Escherichia coli* with its mode of action on human cell. Compare endemic, epidemic and pandemic diseases citing examples. 4+6
5. What are the selection criteria of probiotic strains? Differentiate between humoral and cell mediated immunity. Briefly describe the clonal selection theory. 4+3+3
6. Differentiate sewage and sludge. Discuss secondary sewage treatment process. Briefly describe different types of nucleotide sequence alignment. 2+4+4
7. Write notes on (a) bioremediation (b) biogas production. 5+5
8. Write down the mechanism for development of antibody diversity. Discuss the process of leaching of copper by microorganisms. 5+5
