



WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 5th Semester Examination, 2020, held in 2021



BOTADSE03T-BOTANY (DSE1/2)

INDUSTRIAL AND ENVIRONMENTAL MICROBIOLOGY

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate marks of question.
Candidates should answer in their own words and adhere to the word limit as practicable.*

1. Answer **all** questions briefly from the following: 1×16 = 16
- Define bioreactor.
 - Write the full form of TDS and TOC.
 - Name two upstream processes in industrial fermentation.
 - Name one antifoaming agent in fermentation.
 - Give an example of VAM fungi.
 - Write the role of Impeller in bioreactor.
 - Name one α -amylase producing microorganism.
 - Name one penicillin producing microorganism.
 - Why low pH of fermentation medium is suitable for production of citric acid?
 - What is faecal coliform?
 - What is full form of COD?
 - Give two examples of pesticide degrading spore forming bacteria.
 - What do you mean by fermentation?
 - Write the name of a Gram-negative bacteria that commercially produced lipase.
 - Which lactic acid bacteria can ferment both lactose and glucose?
 - Write the composition of CSL and white sulphite liquor.
2. Answer any **eight** questions from the following: 3×8 = 24
- What are the advantages and disadvantages of air lift fermenter?
 - Describe briefly how microorganisms can be used as indicator of water quality.
 - Mention the raw materials, strains and fermentation conditions with reference to ethanol production.
 - Write the name of industrial producers and uses of lipase and glutamic acid.
 - Compare BOD with COD mentioning their significance.
 - Describe the cause and significance of eutrophication.

- (g) Describe the steps involves or procedures for isolation of rhizobia from root nodule.
- (h) What are the main characters of microorganism used for an industry?
- (i) Draw and describe a bioreactor that fulfil the physiological needs of the organism.
- (j) Compare stationary with submerged fermentation.
- (k) How do you determine the BOD of water sample?
- (l) Describe how soil contaminated aromatic hydrocarbon compounds oxidized by soil bacteria.

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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