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

(a) Define bioreactor.

(b) Write the full form of TDS and TOC.

(c) Name two upstream processes in industrial fermentation.

(d) Name one antifoaming agent in fermentation.

(e) Give an example of VAM fungi.

(f) Write the role of Impeller in bioreactor.

(g) Name one α-amylase producing microorganism.

(h) Name one penicillin producing microorganism.

(i) Why low pH of fermentation medium is suitable for production of citric acid?

(j) What is faecal coliform?

(k) What is full form of COD?

(l) Give two examples of pesticide degrading spore forming bacteria.

(m) What do you mean by fermentation?

(n) Write the name of a Gram-negative bacteria that commercially produced lipase.

(o) Which lactic acid bacteria can ferment both lactose and glucose?

(p) Write the composition of CSL and white sulphite liquor.

2. Answer any ***eight*** questions from the following: 3×8 = 24

(a) What are the advantages and disadvantages of air lift fermenter?

(b) Describe briefly how microorganisms can be used as indicator of water quality.

(c) Mention the raw materials, strains and fermentation conditions with reference to ethanol production.

(d) Write the name of industrial producers and uses of lipase and glutamic acid.

(e) Compare BOD with COD mentioning their significance.

(f) 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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