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B.Tech.(BT) (2011 Onwards) (Sem.-4)

INDUSTRIAL MICROBIOLOGY

Subject Code : BTBT-402

Paper ID : [A1167]

Max. Marks : 60

1. **SECTION-A is COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **FIVE** questions carrying **FIVE** marks each and students has to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students has to attempt any **TWO** questions.

SECTION-A

Q1 Answer briefly :

- Define primary and secondary metabolite and give suitable example of each.
- What are biofertilizers?
- Briefly give the industrial importance of *Lactobacillus* sp. and *Thermophilus* sp.
- Define a starter culture. What is the starter culture for yoghurt production?
- Beer is a fermented beverage which is of two types- Lager and Ale. Highlight the difference in production and properties of Lager and Ale?
- Define Probiotics. Give a suitable example.
- What is bioleaching?
- Define Fermentation.
- What is blow wine?
- What are DDGS? Give their applications.

SECTION-B

- Q2 Discuss briefly the different molecular methods which are used for the isolation of industrially important microbes from the environment.
- Q3 What are narrow and broad spectrum of antibiotics? Name the organism which is used for commercial production of Penicillin.
- Q4 Write short notes on **any two** :
- a) Typical fermenter (with diagram).
 - b) Biopesticides.
 - c) Strain development.
 - d) Batch fermentation.
- Q5 Discuss the merits and de-merits of enzyme immobilization.
- Q6 Briefly discuss the properties of useful industrial microorganisms.

SECTION-C

- Q7 What is SCP? Discuss the source, growth and fermentation conditions for the production of SCP.
- Q8 Which organism is used for the fermentative production of L-Glutamic acid? Discuss briefly the specific process of L-Glutamate production.
- Q9 Discuss the steps involved in production of Wine.