

SEMESTER EXAMINATION-2021
CLASS – M.SC. III SEM.
SUBJECT: ENVIRONMENTAL SCIENCE
PAPER CODE: MEN-C 303

PAPER TITLE: ENVIRONMENTAL BIOTECHNOLOGY

Time: 3 hrs.

Max. Marks: 70

Min. Pass: 40%

Note: Question Paper is divided into two sections: **A and B**. Attempt both the sections as per given instructions.

SECTION-A (SHORT ANSWER TYPE QUESTIONS)

Instructions: Answer any **five questions** in about 150 words (5 X 6 = 30 Marks) each. Each question carries six marks.

- Q-1: Briefly write about the applications of vermi-technology.
- Q-2: Write a brief note on waste management and resource recovery through vermicomposting.
- Q-3: Briefly discuss the applications of biological wastes and their nutrient values.
- Q-4: Discuss use of sludge and livestock wastes in biogas production.
- Q-5: Write a brief note on biofertilizer technology.
- Q-6: Discuss role of microorganisms in production of alcohol.
- Q-7: Write mode of applications of biopesticides.
- Q-8: Write a brief note on integrated pest management.
- Q-9: Briefly write about intellectual property right (IPR).
- Q-10: Briefly discuss the concept and technology of GMOs.

SECTION-B (LONG ANSWER TYPE QUESTIONS)

Instructions: Answer any **FOUR questions** in detail. Each (4 X 10 = 40 Marks) question carries 10 marks.

- Q-11: Define vermi-technology. Discuss suitable characteristics of earthworms for vermicomposting.
- Q-12: Define intensive aquaculture. Discuss modern technologies of integrated fish farming system.
- Q-13: Write a detailed note on role of environmental biotechnology in resource management.
- Q-14: Describe the commercial mass production of rhizobium and blue green algae biofertilizers.
- Q-15: Write a detailed note on sustainable green and organic agricultural practices.
- Q-16: Define bioleaching. Discuss mechanism of bioleaching and its significances.
- Q-17: Define GMOs. Describe micropropagation and somatic hybridization techniques.
- Q-18: Write a detailed note on development of transgenic plants and transgenic hybrid fishes.