



M.Sc. IV Semester Degree Examination, Sept./Oct. - 2024

BIOTECHNOLOGY

Environmental Bioengineering (NEP)

Time : 3 Hours

Maximum Marks : 70

Note : (i) Answer **any five** of the following questions with Question **No.1 (Q1)** **compulsory**, each question carries **equal** marks.

(ii) Draw neat diagrams wherever necessary.

1. Give detail note on sources of heavy metal pollution, microbial systems for heavy metal accumulation and biosorption. **14**
2. (a) Explain different methods of gene transfer in cell lines. **7+7=14**
(b) Give a note on Phase contract microscopy.
3. (a) Describe different treatment methods of waste water from diary industry. **7+7=14**
(b) Explain about phytoremediation of heavy metals.
4. (a) What are aromatic compounds ? Explain its xenobiotics in soil. **7+7=14**
(b) Describe about role of biofertilizer in saving environment.
5. (a) Explain how to remove cadmium, lead and mercury from industrial waste water ? **7+7=14**
(b) What is bioleaching ? Mention its advantages and disadvantages.
6. (a) Explain about aerobic and anaerobic treatment of sewage water. **7+7=14**
(b) Describe different methods to treat pharmaceutical industry waste.
7. (a) What are aliphatic compounds ? Explain its treatment in environment. **7+7=14**
(b) Write a note on use of solar radiation and detoxification in industrial effluent treatment.
- 8 (a) Biopesticides **5+5+4=14**
(b) Biofilms
(c) Vermicomposting

