2203N1707

Candidate's Seat No :_____

M.Sc. Semester-3 Examination

503

Microbiology

March-2024

Time : 2-30 Hours] **[Max. Marks : 70**

Q.1. Describe the use of various biomass as a source for biofuel production. **14**

OR

Q.1. (A) Write in detail about the role of microbes and their metabolites in MEOR. **07**

(B) Discuss the significant role of various microbes involved in biofuel production with examples. **07**

Q.2. Describe field-scale bioleaching processes with their benefits and constraints. **14**

OR

Q.2. (A) Explain methods used for the treatment of acid mine drainage. Give their limitations. **07**

(B) Discuss various factors affecting the bioleaching process. **07**

Q.3. Describe the techniques of bioremediation and write the advantages of each. **14**

OR

Q.3. (A) Discuss the role of microbial metabolites in the remediation of heavy metals. **07**

(B) Write the role of GMOs in the bioremediation process with examples and discuss their environmental safety aspects. **07**

Q.4. Discuss molecular methods for enumeration of marine microbes with their merits and demerits. **14**

OR

Q.4. (A) Write a note on antimicrobial peptides with ring structures from marine ecosystems. **07**

(B) Describe cultivable approaches used to enumerate marine bacteria. **07**

Q.5. Write 1-2 line answers to **any seven** of the following **14**

a. Give the composition of biogas.

b. What is oilgae?

c. State - Darcy's Law and write its importance.

d. What is biobeneficiation?

P.T.O

e. What is galvanic interaction?

f. What is 'jarosite'?

g. What is solid-phase bioremediation?

h. Draw a flow chart of broad categories of contaminants.

i. Give the name of two plants used for remediation with their target metal.

j. What is blue biotechnology?

k. What is a function-based approach for gene mining in marine environments?

l. What is bio silica?

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