BRAINWARE UNIVERSITY

Term End Examination 2023
Programme – M.Sc.(MB)-2021
Course Name – Environmental & Agriculture Microbiology
Course Code - MMB202
(Semester II)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) State the compound degraded by Chaemotium thermophilum

a) Cellulose b) Hemicellulose
c) Lignin d) All of these

(ii) Explain the reason for the growth of algae in oxidation ponds

a) Sunlight b) Carbon dioxide
c) Both a and b d) None of these

(iii) Determine the substrate for Endo-1,4- beta-xylanase

a) Cellulose b) Hemicellulose
c) Lignin d) All of these

(iv) Select the full-form of 2,4-D, synthetic plant hormone auxin widely employed as herbicides.

a) 2,4-Dichlorophenoxyacetic acid b) 2,4-Dichlorophenylacetic acid
c) 2,4-Dichlorophenoxyacetyl alcohol d) 2,4-Diphenoxyacetic acid

(v) Fomitopsis palustris is a cellulase producing fungi. Select its names

a) basidiomycetes b) ascomycetes
c) Deuteromycetes d) Zygomycetes

(vi) Select the bacterium can withstand the dosage of radiation, which are several times higher than what human cells can tolerate

a) Staphylococcus aureus b) Conus magus
c) Deinococcus radiodurans d) Escherichia coli

(vii) Identify which compound is degraded by endomananases

a) Cellulose b) Hemicellulose

c) Lignin d) All of these

(viii) Select the compounds released in rhizosphere region

a) Alcohol b) Fatty acid
c) Sugar d) Both a and b

(ix) Select among the following which involves bioaugmentation

a) eliminating sludge b) plants usage for bioremediation
c) addition of microbes to a cleanup site d) bioventing

(x) Identify the Factors affecting degradation of organic matter

a) Temperature b) Soil mixture
c) Nutrients d) All of these

(xi) Identify the indicator organism for monitoring sanitary quality of water

a) E. coli b) Enterobacter aerogenes
c) Klesbiella pneumoniae d) All of these

(xii) Predict the components of cellulose chains

a) elemental fibrils b) microfibrils
c) macrofibrils d) All of these

(xiii) Identify the region of phyllosphere surrounding stem

a) Caulosphere b) Phyllosphere
c) Anthosphere d) Carposphere

(xiv) Which of the following N2 fixers is involved in symbiotic association with legumes forming root nodules?

a) Rhizobium b) Azotobacter
c) Rhodospirillum d) Clostridium

(xv) Choose the compound degraded by Pseudomonas

a) Cellulose b) Hemicellulose
c) Lignin d) All of these

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Explain - Phylloplane, Epiphytic, and Endophytic organism. (3)
3. Write about the predominant biopolymers of plant cell wall. (3)
4. Explain the role of microorganism in cellulose degradation. (3)
5. Summarize indicator and their use. (3)
6. Describe the sources of microbes in air. (3)

OR

Name few waterborne disease producing bacteria. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Discuss the origin of organic pollution in water (5)
8. Evaluate anaerobic treatment of sewage (5)
9. Explain the enzymes involved in cellulose and lignin degradation (5)
10. Classify different genes responsible for nitrogen fixation (5)
11. Design an oxidation pond and explain its working (5)
12. Describe the physical properties of soil (5)

OR

Define ideal indicator in sanitary microbiology (5)

****