

M.Sc. MICROBIOLOGY
SECOND SEMESTER
SOIL AND ENVIRONMENTAL MICROBIOLOGY
MMB-204



[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 1hr. 30 mins.

Full Marks: 35

Time: 15 mins.

(Objective)

Marks: 10

Choose the correct answer from the following:

1×10=10

1. In a trickling filter:
 - a. Filtration process is used
 - b. Biological action is used
 - c. Neither a and b
 - d. Both a and b
2. Bioaugmentation involves.....
 - a. Eliminating sludge
 - b. Plants usage for bioremediation
 - c. Addition of microbes to a cleanup site
 - d. Bioventing
3. The association which involves the exchange of nutrients between two species is referred to as:
 - a. Mutualism
 - b. Parasitism
 - c. Commensalism
 - d. Antagonism
4. The function of leghaemoglobin in the root nodules of legumes is:
 - a. Oxygen removal
 - b. Nodule differentiation
 - c. Expression of nif gene
 - d. Inhibition of nitrogenase activity
5. If a disease jump from non human animal to a human, then it termed as:
 - a. Infectious
 - b. Congenital
 - c. Zoonotic
 - d. Iatrogenic
6. Conversion of nitrates to nitrogen is called:
 - a. Ammonification
 - b. Nitrification
 - c. Nitrogen fixation
 - d. Denitrification
7. Which of the following is not a biogeochemical cycle?
 - a. Water cycle
 - b. Nitrogen cycle
 - c. Ozone cycle
 - d. Phosphorus cycle
8. Ananda Chakraborty received the first U.S. patent for a GM entity. The entity was:
 - a. The GloFish
 - b. A transgenic mouse expressing the growth hormone gene
 - c. Cloned *E.coli*
 - d. *Pseudomonas* engineered to degrade petroleum

9. 'MRSA' stands for:
- a. Minocycline-resistant *Staphylococcus aureus*
 - b. Macrolides-resistant *Staphylococcus aureus*
 - c. Metronidazole-resistant *Staphylococcus aureus*
 - d. Methicillin-resistant *Staphylococcus aureus*
10. Which of the following cannot be transmitted through droplet nuclei?
- a. Rubella
 - b. Influenza
 - c. Herpes
 - d. None of the above

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(Descriptive)

Time : 1 hr. 15 mins.

Marks : 25

[Answer question no.1 & any two (2) from the rest]

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| 1. Discuss any one airborne disease along with its preventive measures and treatments. | 5 |
| 2. Explain nif gene. How Leghaemoglobin enhances the activity of the nitrogenase enzyme. | 2+8=10 |
| 3. Explain the working principle of Rotating Biological Contractors with diagram. | 10 |
| 4. Give an overview of bioleaching. Can copper be extracted by bioleaching? If yes, how? | 5+5=10 |
| 5. Explain the process of Superbug creation. | 10 |

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