

Name:

Enrolment No:

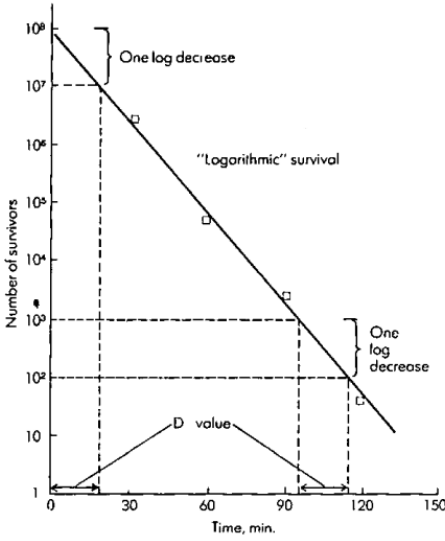


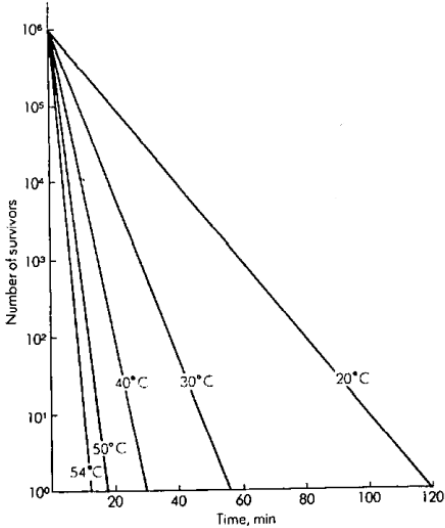
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2022

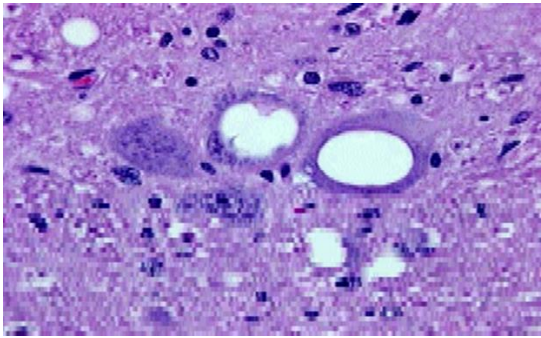
Course: Microbiology
Program: B.Tech Biotechnology
Course Code: HSMB2019

Semester: III
Duration : 3 hours
Max. Marks: 100

Instructions:

| S. No. | Section A Short answer questions/ MCQ/T&F (20Qx1.5M= 30 Marks) | Marks | Cos |
|--------|---|-------|-----|
| Q 1 | Growth of microbes in a liquid media is identified by the A. formation of pellicle at the top of media B. formation of colonies C. formation of sediment at the bottom D. turbidity | 1.5 | CO2 |
| Q 2 | Read the following graph and define D-value.  | 1.5 | CO3 |
| Q 3 | Which of the following is the term for the outer layer of a lichen? A. the cortex B. the medulla C. the thallus | 1.5 | CO1 |

| | | | |
|------|---|-----|-----|
| | D. the theca | | |
| Q 4 | Write the full form of 'FAME' | 1.5 | CO1 |
| Q 5 | Please read the following graph and give out your inferences.  | 1.5 | CO1 |
| Q 6 | Morels and Truffles fall in class of fungi called | 1.5 | CO1 |
| Q 7 | What do both fungi and algae have in common a) Thallus organization b) Chlorophyll c) Grow at low pH d) Cell wall constituents are same | 1.5 | CO1 |
| Q 8 | Study of fungi is called as while study of algae is called as | 1.5 | CO1 |
| Q 9 | Define metastability in viruses. | 1.5 | CO1 |
| Q 10 | Bacteria are visible under while viruses are visible under a. Light microscope, Electron microscope b. Electron microscope, Light microscope c. Stain, Without stain d. Without stain, with stain | 1.5 | CO1 |
| Q 11 | Name a method by which bacteria and archaea can be distinguished. | 1.5 | CO2 |
| Q 12 | Name an appendage used for locomotion in bacteria. | 1.5 | CO1 |
| Q 13 | Name a gram-positive bacterium. | 1.5 | CO1 |
| Q 14 | Name a ciliated protozoan. | 1.5 | CO1 |
| Q 15 | ' <i>Saccharomyces</i> is a fungus that lacks mycelial form and exists as yeast.' Comment on the statement. | 1.5 | CO2 |
| Q 16 | Name a mycelial fungus that forms zygosporangia. | 1.5 | CO3 |
| Q 17 | Differentiate between fungi and bacteria. | 1.5 | CO3 |
| Q 18 | are the algae from which agar is obtained. | 1.5 | CO2 |
| Q 19 | 'Some algae and fungus are edible.' Comment on the statement. | 1.5 | CO2 |

| | | | |
|--|--|------------|------------|
| Q 20 | Give an example of a virus helical capsid with envelope. | 1.5 | CO1 |
| Section B (4Qx5M=20 Marks) | | | |
| Q 1 | Enlist and describe various types of bacteria based on their nutritional requirements with example. | 5 | CO2 |
| Q 2 | Write the principle and working of autoclave. | 5 | CO3 |
| Q 3 | Define Tyndallization. Where is it used? Is it the same as autoclaving? | 5 | CO3 |
| Q 4 | Give an account of sterilization by radiation. What is cold sterilization? Distinguish between mode of action of ionizing and non-ionizing radiation. | 5 | CO3 |
| Section C (2Qx15M=30 Marks) | | | |
| Q 1 | <p>There were microbes growing on barren land and suddenly after a setup of industry nearby; it first became white colored and then they vanished. There not many humans living in that area. Given this; answer the following:</p> <p>(i) What was this microbial association growing on barren land? (1)</p> <p>(ii) Why did it stop growing? (1)</p> <p>(iii) What are the types of this microbial association? (3)</p> <p>(iv) What is the economic importance of this association? (2)</p> <p>(v) What is the ecological significance of this association? (2)</p> <p>(vi) Describe this association and its types. (6)</p> | 15 | CO1 |
| Q 2 | <p>In France recently, two scientists injected themselves with infectious particles and the lab was shut down for months to track down its spread. It is RNase resistant and causes fatal neuronal diseases.</p> <p>Below is the image of tissue pathology it causes:</p>  | 15 | CO1 |

| | | | |
|--|--|-----------|------------|
| | (i) What is visible in the image above? (2) (ii) What is this infectious agent called? (1) (iii) What is its association with cows? (2) (iv) Describe its properties and pathology (5) (v) Name few diseases that it causes. (1) (vi) What is their mode of transmission. (4) | | |
| Section D (2Qx10M=20 Marks) | | | |
| Q 1 | Differentiate between sterilization and disinfection. Write the reasons behind action 99.9% efficacy of disinfectant is how is it tested? | 10 | CO2 |
| Q 2 | Differentiate between gram positive and gram-negative bacteria with the help of suitable illustrations. | 10 | CO1 |