KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Food Technology)
I Semester Final Re - Examination – February 2025
2023 & Previous admission

Pafe.1101   **General Microbiology (2+1)**   **Marks: 50**
Time: 2 hours

I   **Fill in the blanks**   **(10x1=10)**
1. "Father of microbiology" is ………………..
2. ……………the process by which substances move across cell membranes against a concentration gradient, using energy.
3. In 1665, Robert Hooke published a book called ……….. which included detailed illustrations of objects he had observed through a microscope.
4. Bacteria that are dependent on a host organism for survival and nutrients are known as ………..
5. …………. refers to the study of the growth and division of bacteria.
6. Landsteiner contributed in ………………………..
7. Number of possible frames corresponding to DNA sequence could be………. .
8. Protein coat of virus is called as …………….
State True or False
9. Mutation rate of viruses are higher than bacteria, in general.
10. Penicillin is cell wall synthesis inhibitor.

II   **Write short notes on ANY FIVE of the following**   **(5x2=10)**
1. Explain spontaneous generation and how was it disproved?
2. Give scientific contributions of the following:
    I.   Anton van Leeuwenhoek
    II.   Louis Pasteur
    III. Elie Metchnikoff
    IV.   Robert Koch
3. What metabolic and structural adaptations for extreme temperatures do psychrophiles and thermophiles have?
4. Differentiate between Passive diffusion and facilitate diffusion.
5. Differentiate among acidophile, halophile and psychrophile.
6. Differentiate between defined media and complex media.
7. Differentiate between photolithotrophic autotrophs and chemoorgano heterotrophs.

III   **Answer ANY FIVE of the following**   **(5x4=20)**
1. What are the evolutionary advantages of foreign gene acquisition by bacteria?
2. Describe the methods of Maintenance and preservation of bacterial pure cultures.
3. Differentiate between commensalism and amensalism.
4. Differentiate among silent, missense, nonsense and frameshift mutations.
5. Detail about the classification of the bacteria based on carbon and Energy source with examples.
6. Write about different modes of antibiotic actions.
7. Define generation time and mean growth rate constant. Suppose the generation time of a bacterium is 90 minutes and the initial number of cells in a culture is 10^3 cells at the start of the log phase. How many bacteria will there be after 8 hours of exponential growth.

IV   **Write an essay on ANY ONE of the following**   **(1x10=10)**

1. Describe in detail about three modes of bacterial DNA transfer, viz. conjugation, transformation and transduction.

2. Describe the five types of oxygen relationships seen in microorganisms with examples.

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