Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV (NEW) EXAMINATION – SUMMER 2024

Subject Code:3140408 Date:18-07-2024

Subject Name:Microbiology

Time:10:30 AM TO 01:00 PM Total Marks:70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

Q.1 a) Distinctive characteristics of major groups of microorganisms. 3

b) Compare and distinguish between basic microbiology and applied microbiology. 4

c) Explain briefly about molds and their association with other organisms. 7

Q.2 a) List out the importance of fungi. 3

b) Explain briefly about the resolving powers of different microscopes. 4

c) Distinguish between Scanning and transmission microscopy & freeze-etc and freeze- fracture method. 7

OR

c) Explain in detail about the visualization of cells and sub cellular component by light microscopy. 7

Q.3 a) Explain the term GC%, Sequencing and conserved sequence. 3

b) Explain briefly about microbial taxonomy and evolution of diversity. 4

c) Discuss briefly about Endospore forming bacteria . 7

OR

Q.3 a) Explain about Microenvironments. 3

b) Give detailed on Present status of microbial taxonomy and ecology 4

c) Write a note on terrestrial habitat. 7

Q.4 a) Explain about Methanogens. 3

b) Give detailed on 16S rRNA analysis. 4

c) Write a note on Mycobacterium and Mycoplasma. 7

OR

Q.4 a) Write a note on Allied phylogenetically useful genes. 3

b) Explain in detail about biogeochemistry and nutrient cycles. 4

c) Explain in briefly about Culture Dependent methods of analysis of microbial communities. 7

Q.5 a) Explain briefly about Characteristics of bacterial viruses. 3

b) Write a note on morphology and classification of viruses. 4

c) Give detail account on cultivation of animal and plant viruses 7

OR

Q.5 a) Write a note on Acetic acid bacteria. 3

b) Write a note on Lysogeny of viruses. 4

c) Explain briefly about Culture independent analysis of microbial communities. 7

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