

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2022**

**Subject Code:3140408****Date:27-06-2022****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.

		MARKS
<b>Q.1</b>	(a) What is mycelium and hyphae? Give one example of a non-filamentous fungus.	<b>03</b>
	(b) Give brief characteristics of the four groups of cyanobacteria	<b>04</b>
	(c) What are Koch's postulates? Explain how one can use Koch's postulates to establish the microbial cause of a disease.	<b>07</b>
<b>Q.2</b>	(a) Draw a basic structure of T virus with proper annotations.	<b>03</b>
	(b) Give at least four examples of basic and applied microbiology each.	<b>04</b>
	(c) Differentiate between magnification and resolution and pick the color/s for best resolution in visible light spectrum for light microscopy, give the mathematical reason for your choice.	<b>07</b>
<b>OR</b>		
	(c) Explain any two industrially important fungi.	<b>07</b>
<b>Q.3</b>	(a) What are the contributions of Robert Hooke, Antonie Van Leeuwenhoek to the field of microbiology?	<b>03</b>
	(b) Differentiate between Scanning and Transmission electron microscopy	<b>04</b>
	(c) Explain asexual mode of reproduction in fungi based on spore formation.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) Explain any one fungi of importance in beer fermentation.	<b>03</b>
	(b) What are the advantages of using a confocal microscope over a traditional compound light microscope?	<b>04</b>
	(c) In what manner are the following associated with fungi: (a) lichens, (b) nematodes, and (c) orchids?	<b>07</b>
<b>Q.4</b>	(a) What was Martinus Beijernick's biggest contribution to the field of Microbiology?	<b>03</b>
	(b) Write a short note on cultivation and physiology of fungi	<b>04</b>
	(c) Explain lytic cycle of virus with step by step events.	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) What are Basidiospores?	<b>03</b>
	(b) Write a note on morphology of fungi.	<b>04</b>
	(c) Explain classification of phage into various groups based on its morphology.	<b>07</b>
<b>Q.5</b>	(a) What are Ascospores?	<b>03</b>
	(b) Explain various methods of sexual reproduction in fungi.	<b>04</b>
	(c) Explain virus multiplication cycle with proper graph.	<b>07</b>

**OR**

- Q.5** (a) Define a virus and explain why it is defined that way. **03**  
(b) Compare physiology of fungi and bacteria. **04**  
(c) Explain the process of lysogeny. **07**

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