Reg. No.: .....

Name: .....

University of Kerala

U8699

Second Semester FYUGP Degree Examination, April 2025

Discipline Specific Core Course

BIOTECHNOLOGY

UK2DSCBIT109 - Fundamentals of Microbiology

Academic Level: 100-199

Time: 1 Hour 30 Minutes(90 Mins.) **Max. Marks: 42**

Part A. 6 Marks.Time:6 Minutes.(Cognitive Level:Remember(RE)/Understand(UN)) Objective Type. 1 Mark Each.Answer all questions

Qn No.	Question	CL	CO
1	Which type of bacteria has an outer membrane?	RE	2
2	What is Bergey's Manual used for?	RE	1
3	Identify one common type of differential staining technique.	UN	4
4	Name the process by which genetic material is transferred between bacteria through direct contact.	UN	2
5	What are disinfectants?	UN	3
6	Write the name of an autotrophic bacteria.	UN	5

Part B.8 Marks.Time:24 Minutes.(Cognitive Level:Understand(UN)/Apply(AP))Short Answer. 2 marks each.Answer all questions

Qn No.	Question	CL	CO
7	List the nutritional requirements of bacteria	UN	2
8	**Outline** the contributions of Louis Pasteur to microbiology.	UN	1
9	Apply a method for sterilization of heat sensitive liquids.	AP	3
10	Describe different types of bacterial culture media.	AP	5

Part C. 28 Marks.Time:60 Minutes (Cognitive Level:Apply(AP)/Analyse(AN)/Evaluate(EV)/Create(CR)) Long Answer.7 marks each.Answer all 4 Questions choosing among options * within each question

Qn No.	Question	CL	CO
11	A) Apply your understanding of the bacterial growth curve to explain how temperature influences bacterial growth in a laboratory setting OR B) Illustrate the different methods of preserving pure cultures.	AP	5, 5
12	A) Examine the structure and function of bacterial flagella. OR B) *Analyze the role of microbial systematics in understanding the diversity of microorganisms*	AN	2, 1

Qn No.	Question	CL	CO
13	A) Evaluate the control measures of microbial contamination in a biotechnology laboratory, incorporating physical and chemical methods. OR B) Evaluate the use of selective media versus differential media in the isolation of bacteria, with examples.	EV	3, 5
14	A) Design an experiment to isolate a single bacterial species from a sample containing multiple species using the streak plate technique. Include the details on the media selection, procedure and how you would confirm that the culture is pure. OR B) Create an experiment using both hanging drop and gram staining techniques to identify a bacterium from a clinical sample. Describe the steps, expected outcomes and how each technique contributes to bacterial identification.	CR	4, 4