

Reg. No.:



Name:

University of Kerala

U8767

Second Semester FYUGP Degree Examination, April 2025

Discipline Specific Core Course

MICROBIOLOGY

UK2DSCMBY101 - Basic Techniques in 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	What is the magnification of the oil-immersion objective used in a compound microscope?	RE	1
2	The culture method used for antibiotic sensitivity testing of bacteria is _____.	RE	4
3	Expand CFU.	UN	4
4	In what respect disinfectant is different from antiseptic?	UN	3
5	How the metachromatic granules appear under the microscope in a smear stained Albert's method?	UN	2
6	How the limit of resolution and resolving power of the microscope related?	UN	1

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	Discuss the application of pour plate method.	UN	4
8	What are the aniline dyes used as disinfectants?	UN	3
9	Illustrate the working principle of compound microscope.	AP	1
10	Predict the way in which heat-fixing and prolonged washing will affect demonstration of bacterial capsule by staining.	AP	2

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)	AP	3, 3

Qn No.	Question	CL	CO
	Describe the methods of sterilization using moist heat below 100°C. When you are opting these methods for sterilization for microbiological analysis? OR B) What method you will use for the disinfection of your laboratory room? Discuss about the principle and application of each agent used.		
12	A) Discuss about the behaviour of the light rays when it is transmitted through biological objects having different refractive indices. How these changes in transmitted light rays are enhanced in phase contrast microscope to form image? OR B) Analyze the different components of electron microscope that make it superior to light microscope in terms of resolving power.	AN	1, 1
13	A) Evaluate the advantage of cryopreservation of microbial cultures over other techniques. What is the need of using cryoprotectants during cryopreservation of cultures. OR B) Evaluate the effectiveness of McIntosh and Fildes' jar, Gas Pak jar, and Candle jar methods for culturing strict anaerobes.	EV	4, 4
14	A) Design a staining protocol using differential staining techniques to identify and classify unknown bacterial species. Justify your choice of methods and explain their diagnostic applications. OR B) Design a staining-based experiment to detect and confirm the survival form adopted by bacteria under unfavorable conditions. Describe the steps, stains used, and expected microscopic observations.	CR	2, 2