Daffodil International University

Department of Genetic Engineering and Biotechnology
Faculty of Health and Life Sciences
B. Sc. (Hons.) in Genetic Engineering and Biotechnology
Final Examination Spring 2026

Course Code: 0512-1203 | **Section: 253 (A+B)** | **Course Title: Basic Microbiology**
Level and Term: L1, T2 | **Course Teacher Initials: DNH**
Time: 2 Hour | **Total Marks: 40**

				Marks
1	(a)	Compare batch and continuous culture systems of microorganisms in terms of growth phases, nutrient dynamics, and product formation.	[CLO1, PLO2, C1]	3
	(b)	How do complex, selective, and enrichment media contribute to the isolation and growth of microorganisms? Explain with examples.	[CLO1, PLO2, C3]	3
	(c)	Explain the methods used for microbial culture preservation.		2
2	(a)	Describe the essential nutrients required by microorganisms for growth.	[CLO1, PLO1, C5]	3
	(b)	Illustrate the growth curve of batch culture and explain how nutrient uptake and waste accumulation influence each growth phase.	[CLO2, PLO1, C4]	3
	(c)	Explain the plate count method for direct measurement of microorganisms.		2
3	(a)	State the principle of sterilization. Discuss the key factors that affect the efficacy of sterilization methods.	[CLO2, PLO1, C2]	3
	(b)	Describe the chemical methods of sterilization.	[CLO1, PLO2, C1]	3
	(c)	How do antimicrobial agents act on microorganisms?		2
4	(a)	Diagrammatically present the pour plate and spread plate methods of microbial culture.	[CLO1, PLO1, C1]	3
	(b)	Explain the serological and molecular techniques of microbial identification.	[CLO1, PLO2, C6]	3
	(c)	Write short note on IMViC.		2
5	(a)	Define microbial ecology. State and explain the biotic and abiotic factors influencing a microbial ecosystem	[CLO2, PLO2, C2]	4
	(b)	Briefly discuss different types of microbial interactions with suitable examples.	[CLO2, PLO2, C6]	4