


**NAVRACHANA
UNIVERSITY**
a UGC recognized University

School: School of Science
Program/s: Bachelor of Science
Year: 2nd **Semester:** 3rd
Examination: End Semester Examination
Examination year: December - 2021

Course Code: LS276 **Course Name:** Microbiology-I
Date: 03/12/2021
Time: 08:30 am to 10:30 am

Total Marks: 40
Total Pages: 02

Instructions:

- Write each answer on a new page.
- Use of a calculator is permitted/not permitted: NA
- Any other relevant instructions if any: Provide neat and clean diagrams wherever necessary.

Q. No.	Details	Marks	CO	BT
Q.1	Provide short answers to the following. <ol style="list-style-type: none"> 1. Enlist the capsid symmetries found in viruses. 2. Define the contribution of Francesco Redi. 3. What is the use of phenol-coefficient test? 4. Define lithotrophs and organotrophs. 5. What are microaerophiles? 6. Define melting temperature (T_m) of DNA. 7. What is the difference between a bactericidal and bacteriostatic agent? 8. Define chromogen. 9. What are antiseptic agents? 10. What is the difference between a simple staining and negative staining? 	10 (1 x 10)	CO1 CO2 CO3 CO5	BT 1 BT 2
Q.2	Explain in brief. <ol style="list-style-type: none"> 1. Explain the nature of strandedness in virus classification. 2. Explain nucleic acid hybridization. 3. What is scope of industrial microbiology in the modern area of science? 4. What is the difference between process of tyndalization and pasteurization? 5. Define psychrophiles, mesophiles, alkaliphiles and thermophiles. 6. What is the significance of a mordant during a staining procedure, give one example. 7. What is the difference between simple matching coefficient and Jaccard coefficient in numerical taxonomy? 	Any 5 10 (2 x 5)	CO1 CO3 CO5	BT 1 BT 2

Q.3	Match A with B and C			10	C01	BT 1			
		A	B				C	C05	BT 2
	1	Gram's staining	Defined media				<i>E-coli</i> and <i>Salmonella typhi</i>		
	2	Flagella staining	Crystal violet and safranin				Acid-stain		
	3	acid-fast staining	Peptidoglycan				Fumigation		
	4	Potassium permanganate	Nigrosin				Differential staining		
	5	Endospores	Selective media				<i>Proteus vulgaris</i>		
	6	Gram negative bacteria	Tannic acid				<i>E-coli</i>		
	7	Negative staining	Copper sulfate				<i>Mycobacterium tuberculosis</i>		
	8	MacConkey's agar	Malachite green				<i>Klebsiella pneumoniae</i>		
	9	Capsule staining	carbolfuschin				Safranin		
10	Nutrient agar	formaldehyde	<i>Bacillus thuringiensis</i>						
Q.4	Explain in detail. (Provide figures if necessary) any 2			10	C01	BT 1			
	<ol style="list-style-type: none"> 1. Explain the process of pasteurization and moist heat for sterilization. 2. Explain in detail about the contribution of Louis Pasteur and Robert Koch. 3. What is the importance of classification? Define phenetic classification with different shapes and arrangements of bacteria found in nature. 4. Explain defined media and complex media with suitable example. 			(5 x 2)	C02	BT 2			
					C03				
					C05				

*****End of Question Paper*****