

**UG 4<sup>th</sup> Semester Examination - 2025 (Under NCCF)**

<b>Award</b>	:	<b>BSc</b>	
<b>Discipline</b>	:	<b>Microbiology</b>	
<b>Course Type</b>	:	<b>MNC-4 (Minor)</b>	
<b>Course Code</b>	:	<b>BSCMCBMN401</b>	
<b>Course Name</b>	:	<b>Public Health and Microbial Diagnostics</b>	
<b>Full Marks</b>	:	<b>35 (Regular)</b>	<b>Time: 2 Hours</b>

- 1. Answer any five questions.** **1×5=5**
- Name the protozoan species that cause malignant malaria.
  - What are the ideal transport timings for specimens to be transported to the laboratory?
  - You perform a Gram stain on a Gram-positive bacterium, and stop after adding the first dye. What will the appearance of the bacteria be at this point?
  - What do you mean by acid-fast bacteria? Give an example.
  - What is the purpose of staining cells on a microscopic slide?
  - What is the purpose of Ziehl-Neelsen staining?
  - Give an example of an enzyme-substrate complex in ELISA.
  - What is nested-PCR?
- 2. Answer any five questions.** **2×5=10**
- What is serial dilution, and what is its use? 1+1
  - What is a zone of inhibition?
  - What are the characteristics of a *Streptococci* colony?
  - Which test specifically identifies antibodies in a patient's serum and confirms infections like HIV and Lyme disease? 1+1
  - What is MIC? Why is MIC testing important? 1+1
  - What is the basic difference between chocolate and blood agar?
  - What is the basis of selectivity and differential property of MacConkey agar? 1+1
  - Name the suspected pathogens found by Albert staining and Giemsa staining. 1+1
- 3. Answer any two questions for students appearing for their regular courses** **5×2=10**
- What are the advantages and limitations of the disc diffusion method? 2½+2½
  - Name two media widely used for detecting *E. coli* and other related bacteria in water supplies. Which material is present there that favours the growth of gram-negative bacteria over gram-positive? 2+3
  - Write in detail about agglutination and its types.
  - Discuss immunofluorescence and its types in detail.
- 4. Answer any one question.** **10×1=10**
- Describe the staining methods used to detect tuberculosis and malaria. 5+5
  - State the proper specimen collection steps for blood, urine, sputum, and stool. 2½x4