

**SECOND SEMESTER EXAMINATION**  
**DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY**  
**Paper Code: DMLT0204**  
**Paper Name: Microbial Instrumentation**

**Maximum Marks = 70**

**Maximum Time = 3 Hrs.**

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The question paper has seven questions. The candidate must attend only five of them. All the questions has equal marks

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Question 1.	Discuss the principles and techniques of microbial instrumentation, including the use of laboratory equipment and instruments for the isolation, identification, and study of microorganisms.	14 Marks
Question 2.	Analyze the principles and methods of sterilization and disinfection in the laboratory, including the use of physical and chemical agents to eliminate or control microbial growth.	14 Marks
Question 3.	Explain the principles and techniques of microbial culture and growth, including media preparation, aseptic techniques, and the isolation and identification of microorganisms.	14 Marks
Question 4.	Discuss the principles and methods of microscopy in microbial analysis, including light microscopy, electron microscopy, and fluorescence microscopy.	14 Marks
Question 5.	Analyze the principles and techniques of molecular biology in microbial analysis, including polymerase chain reaction (PCR), DNA sequencing, and genetic fingerprinting methods.	14 Marks
Question 6.	Discuss the principles and methods of antimicrobial susceptibility testing, including the determination of antibiotic resistance patterns and the interpretation of test results.	14 Marks
Question 7.	Analyze the emerging trends in microbial instrumentation, such as rapid diagnostic methods, next-generation sequencing, and the use of nanotechnology in microbial analysis.	14 Marks