

**3505**

**B.Sc. (Microbiology)**

**Examination, April-2025**

**MEDICAL MICROBIOLOGY**

**(B-302)**

**[B.Sc. (Micro.)]**

*Time : Three Hours ]*

*[Maximum Marks : 50*

**Note :** Attempt any **five** questions. **All**


questions carry equal marks.  $5 \times 10 = 50$

1. Define infection. Explain the stages of infection with suitable examples. Discuss the factors influencing the Establishment and progression of infection.

2. Compare and contrast the epidemiology of waterborne diseases versus airborne diseases. Highlight the challenges associated with controlling each type of disease transmission in different geographical and socio-economic settings.
3. Describe the diagnostic features and laboratory methods used for the diagnosis of anthrax. Discuss the importance of early diagnosis and treatment in managing anthrax outbreaks.
4. Discuss the serological and molecular diagnostic techniques used for detecting Hepatitis B virus (HBV) infections. Highlight the challenges in diagnosing chronic HBV infections and the implications for public health.

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5. Describe the diagnostic features and laboratory techniques used for detecting protozoan diseases such as malaria and amoebiasis. Discuss the importance of accurate diagnosis in the context of protozoan infections and the role of molecular methods in improving diagnostic accuracy.
  6. Explain the process of biofilm formation by bacteria. Discuss the significance of biofilms in chronic infections and their implications for antimicrobial resistance and treatment strategies.
  7. Describe the pathogenesis of tuberculosis (TB) and its clinical manifestations. Discuss the challenges associated with the diagnosis of drug-resistant TB strains and the importance of molecular methods such as PCR and sequencing in TB diagnostics.
  8. Explain the immunological and molecular diagnostic methods used for detecting HIV infection. Discuss the significance of early diagnosis and the role of HIV viral load testing in monitoring disease progression and treatment efficacy.
  9. Compare and contrast the mechanisms of action of antifungal drugs targeting ergosterol synthesis and cell wall integrity. Discuss the challenges in developing antifungal agents with broader spectrum and improved safety profiles.
  10. Describe the serological markers used for the diagnosis of Hepatitis B Virus (HBV) infection. Discuss the challenges in diagnosing occult HBV infections and the implications for blood safety and public health.