



## Avinashilingam Institute for Home Science and Higher Education for Women

Deemed to be University Estd. u/s 3 of UGC Act 1956, Category A by MHRD (now MoE)

Re-accredited with A++ Grade by NAAC. CGPA 3.65/4, Category I by UGC

Coimbatore - 641 043, Tamil Nadu, India

### Bachelor's Degree Examination – November 2025 V Semester

Class : III UG

Major : Biochemistry and Biotechnology

Time: 3 Hours

Max. Marks: 100

#### 23BBCDE1 Biology of Infectious Diseases

#### Course Outcomes:

- CO1: Acquainted with various classes of microbial infectious agents, their mode of action, biology of the diseases, transmission of diseases, the concepts of treatment, and drugresistance for various antimicrobial agents.
- CO2: Learn molecular basis of diagnosis and treatment of diseases as well as strategies for development of vaccines against these diseases.
- CO3: Exposed to the details of important infectious diseases such as tuberculosis, AIDS, malaria, filariasis, etc. which are highly prevalent in tropical countries.
- CO4: Understand the significance of hygiene, sanitation, vaccination in prevention of infectious diseases.
- CO5: Acquire the knowledge to isolate bacteria, to stain bacteria, fungi, acid fast bacilli and to perform important diagnostic tests for infectious diseases such as WIDAL test

#### Part A

Choose the correct answer

10 x 1 = 10

1. Nosocomial infections are acquired CO1 K1
  - a. from contaminated food
  - b. in healthcare settings
  - c. through insect bites
  - d. from animals
2. Re-emerging infectious diseases are defined as CO1 K1
  - a. Diseases that have never been seen before
  - b. Diseases that were previously under control but are increasing again
  - c. Diseases that only affect animals
  - d. Diseases that are resistant to antibiotics
3. Identify the bacterial disease transmitted through contaminated water CO2 K1
  - a. tuberculosis
  - b. typhoid
  - c. cholera
  - d. tetanus
4. One of the following is a virulence factor that helps bacteria evade phagocytosis? CO2 K3
  - a. flagella
  - b. fapsule
  - c. pili
  - d. endotoxin
5. Host-pathogen interaction begins when CO3 K3
  - a. the host produces antibodies
  - b. the pathogen adheres to host cells
  - c. the pathogen is eliminated (LPS)
  - d. the host develops symptoms
6. Which of the following viruses uses latency as a virulence strategy? CO3 K3
  - a. Influenza virus
  - b. Herpes simplex virus
  - c. Hepatitis A virus
  - d. Dengue virus
7. A characteristic lesion of cutaneous sporotrichosis is CO4 K3
  - a. Vesicular rash
  - b. Bullous eruptions
  - c. Linear chain of nodules
  - d. Pustular acne-like lesions
8. The ring-like appearance in ringworm is due to CO4 K3
  - a. Bacterial colonies
  - b. Viral replication
  - c. Central healing and peripheral spread
  - d. Allergic reaction
9. Leishmaniasis is transmitted by CO5 K3
  - a. Tsetse fly
  - b. Sandfly
  - c. Mosquito
  - d. Tick
10. Giardiasis primarily affects which organ? CO5 K3

**Part B**

**5 x 6 = 30**

**Answer ALL questions**

**Each answer should not exceed 400 words or two pages**

- 11.a. Explain the characteristics and significance of nosocomial infections. CO1 K2  
(or)
- 11.b. Describe the safety measures to be followed when working with infectious pathogens. CO1 K2
- 12.a. What is multidrug-resistant bacteria (MDRB)? Give two examples. CO2 K3  
(or)
- 12.b. Describe the causative agent, mode of transmission, clinical features, and preventive measures of rabies. Add a note on the virulence factors. CO2 K2
- 13.a. Depict the transmission and symptoms of Dengue fever and Polio. CO3 K3  
(or)
- 13.b. Discuss the replication, clinical features and control measures of AIDS. CO3 K3
- 14.a. What are the key characteristics and diagnostic tests used for Aspergillosis? CO3 K1  
(or)
- 14.b. Explain the cause and symptoms of Ringworm. How is it diagnosed? CO4 K3
- 15.a. Mention the causative organism and clinical features of giardiasis. CO5 K3  
(or)
- 15.b. Write short notes on the diagnosis and treatment of leishmaniasis. CO5 K3

**Part C**

**5 x 12 = 60**

**Answer ALL questions**

**Each answer should not exceed 800 words or four pages**

16. a. Discuss the source and transmission of infectious diseases. Discuss the role of vaccines and sanitation in prevention and treatment of infectious diseases. CO1 K2  
(or)
- 16.b. Highlight the causes, examples and global impact of emerging and re-emerging infectious diseases. CO1 K4
- 17.a. Explain the infection process, pathogenicity, diagnostic methods, treatment and vaccine development for tuberculosis and pneumonia. CO2 K3  
(or)
- 17.b. Compare the causes, virulence factors and pathogenesis of typhoid, diphtheria, and botulism. CO2 K3
- 18.a. Analyse the causative agents, transmission, symptoms and prevention of Hepatitis and Influenza. CO3 K2  
(or)
- 18.b. Discuss the pathogenesis, clinical features and control measures of Chickenpox, SARS and COVID-19. CO3 K2
- 19.a. Explain the etiology, clinical features, and diagnostic approaches for Candidiasis. CO4 K2  
(or)
- 19.b. Describe the causative organisms, symptoms and diagnostic techniques used for Sporotrichosis. CO4 K2
- 20.a. Analyse the causative agents, vectors, etiology, pathogenesis, diagnostics and treatment of Malaria. Add a note on vaccine development. CO5 K2  
(or)
- 20.b. Discuss the pathogenesis, clinical features, diagnosis and treatment of Amoebiasis. CO5 K2