

Name:  
Enrolment No:



UPES

End Semester Examination, May 2024

Course: Pathogenesis of Infectious Diseases

Semester : II

Program: M.Sc. Microbiology

Duration : 3 Hours

Course Code: HSMB7020

Max. Marks: 100

Instructions: The Assessment consists of 4 sections.

- Part A contains 20 questions of 1.5 marks each and all questions are compulsory.
- Part B consists of 4 questions of 5 marks each and all questions are compulsory.
- Part C consists of 2 questions of 15 marks each and all questions are compulsory.
- Part D consists of 2 questions of 10 marks each and all questions are compulsory.

S. No.	Section A Short answer questions/ MCQ/T&F (20Qx1.5M= 30 Marks)	Marks	COs
Q 1	Asthma is a _____ disease? a. hypersensitivity b. contaminated c. communicable d. None of the above	1.5	CO1
Q 2	Identify which of the following is a pathogen that could not be identified by the original Koch's postulates? a. <i>Staphylococcus aureus</i> b. <i>Pseudomonas aeruginosa</i> c. <i>Human immunodeficiency virus</i> d. <i>Salmonella enterica serovar Typhimurium</i>	1.5	CO2
Q 3	Identify which of the following choices lists the steps of pathogenesis in the correct order? a. invasion, infection, adhesion, exposure b. adhesion, exposure, infection, invasion c. exposure, adhesion, invasion, infection d. disease, infection, exposure, invasion	1.5	CO1
Q 4	Mention the following as a virulence factor for a pathogen:? a. surface protein allowing the pathogen to bind to host cells b. secondary host the pathogen can infect c. surface protein the host immune system recognizes d. the ability to form a provirus	1.5	CO2
Q 5	You have recently identified a new toxin. It is produced by a gram-negative bacterium. It is composed mostly of protein, has high toxicity, and is not heat-stable. You also discover that it targets liver cells. Based on these characteristics, state how you would classify this toxin? a. superantigen b. endotoxin c. exotoxin d. leucocidin	1.5	CO2

<b>Q 6</b>	Phospholipases are enzymes that do which of the following? a. degrade antibodies b. promote pathogen spread through connective tissue. c. degrade nucleic acid to promote spread of pathogen d. degrade cell membranes to allow pathogens to escape phagosomes	<b>1.5</b>	<b>CO4</b>
<b>Q 7</b>	A disease that has been transmitted from an animal to a human is known as _____? a. Acquired b. non-communicable c. zoonotic d. None of the above	<b>1.5</b>	<b>CO3</b>
<b>Q 8</b>	State the term 'aetiology' mean? a. cause of disease b. incidence and distribution of disease c. the development process of disease d. d. a group of symptoms that occur together in a disease	<b>1.5</b>	<b>CO3</b>
<b>Q 9</b>	Mention the type of disease is said to be caused by 'risk factors'? a. non-communicable b. communicable c. congenital d. zoonosis	<b>1.5</b>	<b>CO1</b>
<b>Q 10</b>	Identify an organization is crucial in the monitoring and advising of global health issues? a. non-government organizations b. World Health Organization c. North Atlantic Treaty Organization d. United Nations	<b>1.5</b>	<b>CO4</b>
<b>Q 11</b>	Identify which one of the following is a set of bacterial diseases? a. Malaria, poliomyelitis, mumps b. Mumps, cholera, typhoid c. Plague, Leprosy, Diphtheria d. Measles, Tuberculosis, Tetanus	<b>1.5</b>	<b>CO2</b>
<b>Q 12</b>	Mention which one of the following pathogens causes leprosy in humans? a. Salmonella b. Mycobacterium c. TMV d. Monocystis	<b>1.5</b>	<b>CO1</b>
<b>Q 13</b>	Mention: Endotoxins are lipopolysaccharides (LPS) that make up the outer membrane of most.....?	<b>1.5</b>	<b>CO2</b>
<b>Q 14</b>	Identify which one CANNOT be transmitted via infectious droplets? a. Rubella b. Common cold c. Influenza d. None of the above	<b>1.5</b>	<b>CO2</b>
<b>Q 15</b>	Mention: Enabling people to increase control over their own health is known as _____.?	<b>1.5</b>	<b>CO1</b>

<b>Q 16</b>	Identify which one of the following is NOT one of the key conditions associated with metabolic syndrome? a. cardiovascular disease b. insulin resistance c. obesity d. hypothyroidism	<b>1.5</b>	<b>CO2</b>
<b>Q 17</b>	Pathogen A has an ID <sub>50</sub> of 50 particles, pathogen B has an ID <sub>50</sub> of 1,000 particles, and pathogen C has an ID <sub>50</sub> of $1 \times 10^6$ particles. State pathogen is most virulent? a. pathogen A b. Pathogen c. Pathogen C	<b>1.5</b>	<b>CO2</b>
<b>Q 18</b>	Mention the cause of hepatotoxicity? a. viral infection b. fatty liver c. tumor d. drugs	<b>1.5</b>	<b>CO3</b>
<b>Q 19</b>	Identify the condition is often referred to as hospital, community, ventilation, or healthcare associated? a. Tuberculosis b. Pneumonia c. Bronchitis d. pneumothorax	<b>1.5</b>	<b>CO4</b>
<b>Q 20</b>	Mention the type of micro-organism uses a host cell to provide energy and materials for its own reproduction? a. Virus b. Protozoa c. Bacteria d. fungi	<b>1.5</b>	<b>CO1</b>
<b>Section B</b> <b>(4Qx5M=20 Marks)</b>			
<b>Q 1</b>	Discuss the stages of pathogenesis? Write down the stages?	<b>5</b>	<b>CO1</b>
<b>Q 2</b>	Explain the difference between a communicable disease and a noncommunicable disease?	<b>5</b>	<b>CO2</b>
<b>Q 3</b>	Explain how pathogens evade the immune system?	<b>5</b>	<b>CO3</b>
<b>Q 4</b>	Describe the implications for family-centered care of four aspects of behavior that influence the development of chronic diseases?	<b>5</b>	<b>CO4</b>
<b>Section C</b> <b>(2Qx15M=30 Marks)</b>			
<b>Q 1</b>	Justify: Angela, a 25-year-old female patient in the emergency department, is having some trouble communicating verbally because of shortness of breath. A nurse observes constriction and swelling of the airway and labored breathing. The nurse asks Angela if she has a history of asthma or allergies. Angela shakes her head now, but there is fear in her eyes. With some difficulty, she explains that her father died suddenly at age 27, when she was just a little girl, of a similar respiratory attack. The underlying cause had never been identified. What are some possible causes of constriction and swelling of the airway? What causes swelling of body tissues in general?	<b>15</b>	<b>CO3</b>

<b>Q 2</b>	Justify: in Germany, in 1930, a group of 251 infants was accidentally administered a tainted vaccine for tuberculosis that contained live <i>Mycobacterium tuberculosis</i> . This vaccine was administered orally, directly exposing the infants to the deadly bacterium. Many of these infants contracted tuberculosis, and some died. However, 44 of the infants never contracted tuberculosis. Based on your knowledge of the innate immune system, what innate defenses might have inhibited <i>M. tuberculosis</i> enough to prevent these infants from contracting the disease?	<b>15</b>	<b>CO4</b>
<b>Section D</b> <b>(2Qx10M=20 Marks)</b>			
<b>Q 1</b>	Explain which solution of ethyl alcohol is more effective at inhibiting microbial growth: a 70% solution or a 100% solution?	<b>10</b>	<b>CO2</b>
<b>Q 2</b>	Describe how malaria crosses the blood-brain barrier? Explain with a diagram?	<b>10</b>	<b>CO1</b>