

# **Module 13: Pathogens — Study Questions**

## **Introduction to Pathogens**

1. What is a pathogen?
2. What are the five main categories of pathogens?
3. What does it mean for a disease to be "infectious"?
4. What are the main routes of disease transmission?
5. What factors determine whether exposure to a pathogen will result in disease?

## **Bacteria**

1. Are bacteria prokaryotic or eukaryotic? What does this mean for their cell structure?
2. What is the difference between gram-positive and gram-negative bacteria?
3. How do bacteria cause disease in the body?
4. What are toxins, and how do some bacteria use them to cause illness?
5. Give two examples of diseases caused by bacteria.
6. What are some beneficial roles that bacteria play in or on the human body?
7. How do antibiotics work to fight bacterial infections?
8. What is antibiotic resistance, and why is it a growing concern?
9. What can be done to slow the spread of antibiotic-resistant bacteria?

## **Viruses**

1. Describe the basic structure of a virus.

2. Why are viruses considered non-living by most scientists?
3. What is the difference between the lytic cycle and the lysogenic cycle?
4. How do viruses cause disease in the body?
5. Give two examples of diseases caused by viruses.
6. Why are antibiotics ineffective against viral infections?
7. How do vaccines help prevent viral diseases?

## Fungi

1. What are fungi, and how are they different from bacteria?
2. How do fungi obtain nutrients?
3. Give two examples of fungal infections in humans.
4. How are fungal infections typically transmitted?
5. Why can fungal infections be difficult to treat?

## Parasites and Prions

1. What is a parasite?
2. What is the difference between a protozoan parasite and a helminth?
3. Give an example of a disease caused by a protozoan parasite.
4. How are parasitic infections typically transmitted?
5. What are prions, and how do they differ from other pathogens?
6. Why are prion diseases particularly difficult to treat?

## **Body Defenses**

1. What are first-line defenses against pathogens?
2. How does the skin protect against infection?
3. What is the inflammatory response, and what purpose does it serve?
4. What are some signs of inflammation, and what causes them?
5. How does good hygiene help prevent the spread of infectious diseases?