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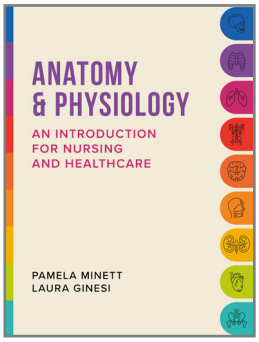

Questions to accompany *Anatomy and Physiology*

CHAPTER 15 DISEASE

Multiple Choice Questions (MCQs)

Each question consists of a stem statement or question, and 5 options.
You must pick the one correct answer.

1. Which of the following does NOT describe a pandemic?

A. outbreaks occur in different places with no known connection between them
B. the disease is always present in a particular part of the world
C. the disease crosses international boundaries
D. the disease kills more people than any other illness
E. the disease spreads rapidly, infecting a number of people

2. Which of the following definitions usually describes a progressive disease?

A. short-term
B. affecting only one part of the body
C. symptoms recur or become more severe
D. gets worse over time
E. affecting the entire body

3. An example of an environmental risk factor for disease could be:

A. polluted water supply
B. gender of the affected person
C. age of the affected person
D. addictive qualities of a drug or agent
E. virulence of a pathogen

4. Which of the following factors could be considered to be pathogenic?

A. lymphocyte
B. platelet
C. virus
D. hepatocyte
E. wound

5. What is the usual order of events in the chain of infection?

A. portal of exit → portal of entry → reservoir of infection → organism → susceptible host → mode of transmission
B. infectious organism → reservoir of infection → portal of exit → mode of transmission → portal of entry → susceptible host
C. infectious organism → mode of transmission → susceptible host → portal of exit → reservoir of infection → portal of entry
D. portal of entry → infectious organism → susceptible host → reservoir of infection → portal of exit → mode of transmission
E. reservoir of infection → portal of exit → mode of transmission → susceptible host → portal of entry → infectious organism

6. Which of these should NOT normally be a portal of entry for pathogenic agents?

A. injection
B. inhalation
C. ingestion
D. digestion
E. urination

7. What is the single most important means of preventing transmission of infective pathogens?

A. inadequate sterilisation
B. effective hand washing technique
C. personal protective equipment (PPE)
D. cleaning the toilets
E. sneezing, coughing or talking

8. Cholera is a bacterial disease that is transmitted:

A. by people who are carriers
B. by means of spores
C. through microscopic droplets from an infected person
D. because of polluted water or poor sanitation
E. by inadequate sterilisation of instruments and equipment

9. An example of a pathogen that can cause disease by entering the body via a wound is:

A. typhoid
B. ringworm
C. the common cold
D. measles
E. rabies

10. The length of the incubation stage of a disease varies, but the expression is used to describe:

A. the time between infection and the person's ability to transmit the disease to someone else
B. the time during which the symptoms disappear and the patient regains their strength
C. the time between the entry of a pathogen and the appearance of signs and symptoms in the affected person
D. the period of time when a person can transmit a pathogen to other people
E. the time it takes to sterilise equipment and instruments in an autoclave

11. The correct order of the four stages of viral infection is:

A. release → replication → attachment → penetration
B. attachment → penetration → replication → release
C. replication → release → attachment → penetration
D. attachment → replication → penetration → release
E. penetration → attachment → replication → release

12. Which of the following is NOT an example of a viral disease?

A. polio
B. smallpox
C. hepatitis A
D. measles
E. *Staphylococcus*

13. Which of the following diseases is caused by a parasite?

A. malaria
B. *Clostridium difficile*
C. measles
D. mumps
E. *Candida albicans*

14. Oncogenes:

A. are genes that function to inhibit cell proliferation
B. are responsible for fixing and repairing DNA that has become damaged
C. are genes that have the potential to cause cancer
D. are responsible for cell signalling processes
E. inhibit the cell cycle, allowing time for DNA to be repaired

Critical thinking: ARQs (assertion reasoning questions)

These questions consist of two statements:

- an assertion, and
- a reason.

You must first determine whether each statement is *TRUE* or *FALSE*.

- If both statements are true, you must next determine whether the reason correctly explains the assertion. The answer will be option 1 or option 2.
- If one statement is true and the other is false then the answer is option 3 or option 4, depending on which of the statements is correct.
- If both statements are false, then the answer is option 5.

There is one option for each possible outcome.

Question 15

A = the Assertion	**R = the Reason**
Signs are objective evidence of disease that can be observed by healthcare professionals	Signs are used as an assessment of the future progression and outcome of diseases
Options	
1) Both A and R are true and R is the correct explanation of A	
2) Both A and R are true but R is NOT the explanation of A	
3) A is true but R is false	
4) A is false but R is true	
5) Both A and R are false	

Question 16

A = the Assertion	**R = the Reason**
Development of a disease in an individual usually depends on the presence or absence of risk factors	Risk factors are conditions that increase the likelihood of the development of disease (or injury) in a person
Options	
1) Both A and R are true and R is the correct explanation of A	
2) Both A and R are true but R is NOT the explanation of A	
3) A is true but R is false	
4) A is false but R is true	
5) Both A and R are false	

Question 17

A = the Assertion	R = the Reason
The chain of infection is the elimination of the reservoir of infection which needs to take place to prevent a pathogen – bacterium, virus, fungus or parasite – from passing from one person to another	Communicable diseases are those which can be transmitted from one person to another, so breaking the chain of infection can disrupt an outbreak or epidemic of disease
Options	
1) Both A and R are true and R is the correct explanation of A	
2) Both A and R are true but R is NOT the explanation of A	
3) A is true but R is false	
4) A is false but R is true	
5) Both A and R are false	

Putting it all together

Question 18

a) Explain, using examples, what is meant by the term "pathogen".
b) Choose one of the pathogens you have named in part a) and describe how the principles of disease control are applied to break the chain of infection to prevent outbreaks.

Question 19

Create your own diagram that shows the key ideas of epidemiology. Use the following words:

Population	Causation	Transmission	Outbreak
Screening	Progression	Disease	Epidemic
Sporadic	Endemic	Pandemic	Morbidity
Co-morbidity	Host	Environment	Agent

Question 20

Create a diagram that explains what the "portals of entry" to the human body are. Annotate your diagram to indicate how the innate immune system (*Chapter 14*) provides physical and chemical barriers that defend against entry of pathogens at these portals.

Answers to questions

Answers are supplied to most, but not all questions. Some may require you to carry out further research using the book.

Multiple Choice Questions (MCQs)

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1. Which of the following does NOT describe a pandemic?

B. the disease is always present in a particular part of the world

2. Which of the following definitions usually describes a progressive disease?

D. gets worse over time

3. An example of an environmental risk factor for disease could be:

A. polluted water supply

4. Which of the following factors could be considered to be pathogenic?

C. virus

5. What is the usual order of events in the chain of infection?

B. infectious organism → reservoir of infection → portal of exit → mode of transmission → portal of entry → susceptible host

6. Which of these should NOT normally be a portal of entry for pathogenic agents?

A. injection

7. What is the single most important means of preventing transmission of infective pathogens?

B. effective hand washing technique

8. Cholera is a bacterial disease that is transmitted:

D. because of polluted water or poor sanitation

9. An example of a pathogen that can cause disease by entering the body via a wound is:

E. rabies

10. The length of the incubation stage of a disease varies, but the expression is used to describe:

C. the time between the entry of a pathogen and the appearance of signs and symptoms in the affected person

11. The correct order of the four stages of viral infection is:

B. attachment → penetration → replication → release

12. Which of the following is NOT an example of a viral disease?

E. *Staphylococcus*

13. Which of the following diseases is caused by a parasite?

A. malaria

14. Oncogenes:

C. are genes that have the potential to cause cancer

Critical thinking: ARQs (assertion reasoning questions)

These questions consist of two statements:
- an assertion, and
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You must first determine whether each statement is *TRUE* or *FALSE*.
- If both statements are true, you must next determine whether the reason correctly explains the assertion. The answer will be option 1 or option 2.
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There is one option for each possible outcome.

Question 15

A = the Assertion	**R = the Reason**
Signs are objective evidence of disease that can be observed by healthcare professionals	Signs are used as an assessment of the future progression and outcome of diseases
3. A is true but R is false	
Explanation The Assertion (A) is *TRUE* and is a definition of clinical signs, which include altered respiration rate, pulse rate or blood parameters (measured through laboratory testing) that reflect physiological changes in the person. The Reason (R) is *FALSE*. The term prognosis is used to describe an assessment of future progression of a disease and the possible outcome for a patient who is affected. **The correct option to select is 3.**	

Question 16

A = the Assertion	**R = the Reason**
Development of a disease in an individual usually depends on the presence or absence of risk factors	Risk factors are conditions that increase the likelihood of the development of disease (or injury) in a person
1. Both A and R are true and R is the correct explanation of A	
Explanation The Assertion (A) is *TRUE*. The health and wellbeing of each person are affected by many factors; those which are known as risk factors include physiological and genetic characteristics or lifestyle choices and behaviour(s) that increase the person's risk of getting a particular disease or type of injury. The Reason (R) is *TRUE* as it is a statement that provides a definition of what risk factors are. Since R is a correct statement and provides the reason for the Assertion, **option 1 is the correct answer to select.**	

Question 17

A = the Assertion	R = the Reason
The chain of infection is the elimination of the reservoir of infection which needs to take place to prevent a pathogen – bacterium, virus, fungus or parasite – from passing from one person to another	Communicable diseases are those which can be transmitted from one person to another, so breaking the chain of infection can disrupt an outbreak or epidemic of disease

4. A is false but R is true

Explanation

The Assertion (A) is *FALSE*. The chain of infection describes a series of six different events that have to happen for pathogens to cause an infection in a person. A reservoir of infection is only one of the six links.

A reservoir of infection is any person, animal, plant or substance in which a pathogen can survive and which therefore serves as a source from which other individuals can become infected.

The Reason (R) is *TRUE*. Communicable diseases are those that can be transmitted from one person to another by direct contact. If you can break a link at any stage in the series of processes that lead to infection, it is possible to stop infection arising.

Option 4 is therefore the correct solution.