

LEC 1 Q VIROLOGY:

- 1. What practice was developed in response to smallpox in ancient China?**
 - A) Vaccination
 - B) Variolation
 - C) Antibiotic therapy
 - D) Isolation
- 2. Which scientist first proposed the term "virus"?**
 - A) Walter Reed
 - B) Louis Pasteur
 - C) Ivanovski
 - D) Loeffler
- 3. What is the primary structure that encloses a virus's genetic material?**
 - A) Envelope
 - B) Nucleic acid
 - C) Capsid
 - D) Glycoprotein spikes
- 4. Which type of nucleic acid can a virus contain?**
 - A) Only DNA
 - B) Only RNA
 - C) Both DNA and RNA
 - D) Either DNA or RNA, but not both
- 5. What distinguishes an epidemic from a pandemic?**
 - A) The severity of the disease
 - B) The transmission method
 - C) The geographical spread
 - D) The causative agent
- 6. Which of the following viruses is known to cause foot-and-mouth disease in cattle?**
 - A) Tobacco Mosaic Virus
 - B) Yellow fever virus
 - C) Coronavirus
 - D) Loeffler and Frosch virus
- 7. How do enveloped viruses evade the immune system?**
 - A) By altering their nucleic acid
 - B) By integrating into the host DNA

- C) By acquiring part of the host cell membrane
- D) By replicating faster than the immune response

8. **What type of virus can directly function as messenger RNA upon entering a host cell?**

- A) Negative-sense RNA virus
- B) Double-stranded DNA virus
- C) Positive-sense RNA virus
- D) Circular RNA virus

Answers

- 1. B
- 2. B
- 3. C
- 4. D
- 5. C
- 6. D
- 7. C
- 8. C

1. **What was the purpose of variolation in ancient China?**

- A) To completely eradicate smallpox
- B) To induce immunity against smallpox
- C) To treat smallpox symptoms
- D) To prevent other diseases

2. **Which of the following statements about viruses is true?**

- A) They can replicate independently outside a host cell.
- B) They contain both DNA and RNA.
- C) They are considered acellular microorganisms.
- D) They have metabolic activity similar to bacteria.

3. **What is a virion?**

- A) A type of bacterial infection
- B) The complete virus particle
- C) The host cell infected by a virus
- D) A viral protein coat

4. **How do viruses primarily cause disease in hosts?**

- A) By directly attacking host immune cells
- B) By replicating inside host cells and damaging them

- C) By producing toxins in the bloodstream
D) By creating biofilms on host tissues
5. **What is the significance of glycoprotein spikes on a virus?**
- A) They protect the viral genome from degradation.
B) They assist in the attachment to host cells.
C) They enable the virus to replicate faster.
D) They determine the viral type.
6. **Which viral characteristic is most important for distinguishing between an epidemic and a pandemic?**
- A) The virus type
B) The host range
C) The geographical spread
D) The transmission method
7. **What type of nucleic acid can positive-sense RNA viruses use directly upon entering a host cell?**
- A) They must convert to DNA first.
B) They act as messenger RNA (mRNA).
C) They cannot be used until replicated.
D) They form a protective capsid.
8. **Which of the following is a true statement regarding the capsid of a virus?**
- A) It is always surrounded by an envelope.
B) It is composed of nucleic acids.
C) It protects the viral genome and gives the virus its shape.
D) It helps the virus escape from host immune responses.

Answers

1. B
2. C
3. B
4. B
5. B
6. C
7. B
8. C
9. **Which scientist demonstrated that a disease in tobacco was caused by a virus?**
- A) Walter Reed
B) Louis Pasteur

- C) Ivanovski
- D) Loeffler

10. What are the two types of nucleic acids that viruses can have?

- A) DNA and plasmids
- B) RNA and proteins
- C) DNA and RNA
- D) mRNA and tRNA

11. What is the role of the viral envelope in some viruses?

- A) To provide structural support
- B) To protect the nucleic acid from enzymes
- C) To assist in the attachment to host cells
- D) To help the virus replicate in the host

12. Which of the following is NOT a characteristic of viruses?

- A) They can infect a wide range of organisms.
- B) They contain organelles for metabolism.
- C) They must enter a host cell to reproduce.
- D) They have a protective capsule.

13. In terms of replication, how do viruses differ from bacteria?

- A) Viruses can replicate independently.
- B) Bacteria are obligate intracellular parasites.
- C) Viruses replicate inside host cells only.
- D) Bacteria do not need a host to replicate.

14. What happens to the host cell when a virus exits after replication?

- A) The host cell divides.
- B) The host cell remains intact.
- C) The host cell often ruptures (lyses).
- D) The host cell becomes dormant.

15. Which of the following viruses can cause severe respiratory illness in humans?

- A) Tobacco Mosaic Virus
- B) Yellow fever virus
- C) SARS and MERS
- D) Herpes Simplex Virus

16. What is the primary method by which viruses are classified?

- A) By their size
- B) By their geographical distribution

- C) By their structural, genomic, and replication properties
- D) By the diseases they cause

Answers

- 9. C
- 10. C
- 11. C
- 12. B
- 13. C
- 14. C
- 15. C
- 16. C

1. **What key concept did variolation rely on, as observed in survivors of smallpox?**
 - A) Active immunization through vaccination
 - B) Passive immunity from maternal antibodies
 - C) Natural immunity developed after infection
 - D) Acquired immunity through exposure to mild pathogens

2. **In the context of viral infection, what does the term "obligate intracellular parasite" refer to?**
 - A) A virus that can replicate outside of a host
 - B) A virus that requires a host cell for replication
 - C) A bacterium that requires human cells for survival
 - D) A virus that causes cell death immediately upon entry

3. **Which discovery by Loeffler and Frosch was significant for understanding animal viruses?**
 - A) Identification of the Tobacco Mosaic Virus
 - B) Demonstration of the viral nature of foot-and-mouth disease
 - C) Development of the first vaccine for a viral infection
 - D) Discovery of the role of glycoproteins in viral attachment

4. **What role do capsomers play in the structure of a virus?**
 - A) They provide energy for viral replication.
 - B) They are the genetic material of the virus.
 - C) They assemble to form the capsid, protecting the viral genome.
 - D) They enhance the virus's ability to infect host cells.

5. **How does the presence of glycoprotein spikes on an enveloped virus facilitate infection?**
 - A) By degrading host cell membranes
 - B) By directly injecting nucleic acids into the host

- C) By binding to specific receptors on host cells
D) By evading the host immune response
6. **Which statement accurately describes the replication strategy of negative-sense RNA viruses?**
- A) They can directly translate into proteins upon entry.
B) They require the synthesis of a complementary RNA strand first.
C) They replicate without the host's ribosomes.
D) They do not integrate into the host genome.
7. **What is the significance of the "broad host range" of some viruses, such as the influenza virus?**
- A) It indicates a more severe disease outcome.
B) It allows the virus to infect multiple species and facilitates mutation.
C) It prevents the development of vaccines.
D) It enhances the virus's resistance to antiviral drugs.
8. **In virus classification, what is the purpose of using suffixes like "-viridae" and "-virus"?**
- A) To indicate the severity of the virus
B) To categorize viruses based on their geographic distribution
C) To group viruses with similar structural and replication characteristics
D) To differentiate viruses based on the diseases they cause

Answers

1. C
2. B
3. B
4. C
5. C
6. B
7. B
8. C
9. **What is the primary function of the viral capsid?**
- A) To facilitate the entry of the virus into the host cell
B) To protect the viral nucleic acids and provide structural integrity
C) To aid in the replication of viral proteins
D) To interact with the host's immune system
10. **Which of the following accurately describes the replication mechanism of viruses?**
- A) Viruses replicate by binary fission like bacteria.
B) Viruses hijack the host cell's machinery to produce viral components.

- C) Viruses replicate independently of host cells.
- D) Viruses undergo mitosis to reproduce.

11. What characteristic of viruses makes them difficult to treat compared to bacterial infections?

- A) Their ability to mutate rapidly
- B) Their structural simplicity
- C) Their reliance on host cells for replication
- D) Their potential to form spores

12. In the context of viral diversity, what does the term "host range" refer to?

- A) The variety of symptoms a virus can cause in humans
- B) The range of environments where a virus can survive
- C) The variety of species that a virus can infect
- D) The number of mutations a virus can undergo

13. What role does the viral envelope play in immune evasion?

- A) It contains enzymes that degrade immune cells.
- B) It mimics host cell membranes to avoid detection.
- C) It actively suppresses the immune response.
- D) It facilitates the production of immunoglobulins.

14. Which viral property is a determining factor in whether a virus can cause a localized epidemic or a global pandemic?

- A) The size of the virus
- B) The mode of transmission
- C) The type of nucleic acid present
- D) The structure of the capsid

15. What differentiates positive-sense RNA viruses from negative-sense RNA viruses regarding protein synthesis?

- A) Positive-sense RNA must first be converted to DNA.
- B) Positive-sense RNA can be directly translated into proteins.
- C) Positive-sense RNA viruses do not require host ribosomes.
- D) Positive-sense RNA is always single-stranded.

16. Which of the following is a key feature of defective viruses?

- A) They can replicate independently of other viruses.
- B) They lack some components necessary for replication.
- C) They are more pathogenic than typical viruses.
- D) They have an envelope that aids in infection.

Answers

- 9. B
- 10. B
- 11. C
- 12. C
- 13. B
- 14. B
- 15. B
- 16. B

17. What concept did the early practice of variolation rely on, regarding the immunity developed by individuals who survived smallpox?

- A) Passive immunity from maternal antibodies
- B) The principle of herd immunity
- C) The notion of acquired immunity through controlled exposure
- D) Genetic resistance to infection

18. Which of the following statements best describes the interaction between viruses and host cells during infection?

- A) Viruses enter host cells and immediately replicate without any delay.
- B) Viruses require the host cell's machinery for both replication and assembly of new virions.
- C) Viruses integrate their nucleic acids into the host genome before replication.
- D) Viruses have specific receptors that allow them to enter any type of cell.

19. In viral taxonomy, what is the significance of nucleotide sequence and antigenic reactivities in virus subtyping?

- A) They help predict the geographic spread of the virus.
- B) They determine the pathogenicity of the virus.
- C) They provide insight into the evolutionary relationships between viruses.
- D) They assist in the development of broad-spectrum antiviral drugs.

20. What is a primary reason why antiviral treatments are generally more challenging to develop than antibiotics?

- A) Viruses have complex structures that are difficult to target.
- B) Viruses replicate inside host cells, making it hard to target them without harming the host.
- C) Bacterial infections are usually more severe than viral infections.
- D) Antibiotics can kill viruses effectively, but antivirals cannot.

21. Which of the following best explains the phenomenon of emerging viral strains, such as SARS and MERS?

- A) They arise from mutations in existing viruses that enable cross-species transmission.
B) They are entirely new viruses with no relation to previous strains.
C) They are reactivations of dormant viruses within the host population.
D) They are a result of antibiotic resistance in bacteria that allows viruses to flourish.
- 22. How do structural variations, such as the presence or absence of an envelope, affect viral transmission?**
- A) Enveloped viruses are more resistant to environmental degradation.
B) Non-enveloped viruses rely solely on vectors for transmission.
C) Enveloped viruses are typically more susceptible to heat and desiccation.
D) Non-enveloped viruses are usually more effective in causing systemic infections.
- 23. What critical role do capsomeres play in the viral life cycle?**
- A) They assist in the enzymatic breakdown of host cell components.
B) They form the basic structural units of the capsid that protect viral nucleic acids.
C) They serve as antigens that stimulate host immune responses.
D) They enable the virus to undergo rapid mutations during replication.
- 24. In the context of viral entry into host cells, what is the role of peplomers?**
- A) They are the main component of the viral genome.
B) They facilitate the fusion of the virus with the host cell membrane.
C) They provide structural support to the capsid.
D) They enhance the virulence of the virus.

Answers

17. C
18. B
19. C
20. B
21. A
22. C
23. B
24. B

25. What is the main difference between segmented and intact RNA in viral genomes?

- A) Segmented RNA viruses can only infect bacteria, while intact RNA viruses infect eukaryotes.
B) Segmented RNA allows for more genetic diversity through reassortment during co-infection.
C) Intact RNA viruses cannot replicate without a host cell, whereas segmented

RNA can.

D) Segmented RNA viruses are less stable than those with intact RNA.

26. Why are some viruses classified as "defective"?

A) They can only replicate in the presence of helper viruses.

B) They are incapable of infecting host cells independently.

C) They have a lower mutation rate compared to other viruses.

D) They can cause severe disease despite their inability to replicate.

27. How does the concept of "quick transmission" contribute to the impact of viral epidemics and pandemics?

A) It allows for the rapid evolution of new viral strains.

B) It facilitates immediate immune responses in the population.

C) It leads to a higher rate of asymptomatic carriers in the population.

D) It enables the virus to spread before containment measures can be implemented.

28. What distinguishes an epidemic from a pandemic in terms of viral spread?

A) An epidemic is caused by a new virus, while a pandemic arises from an existing virus.

B) An epidemic is localized, while a pandemic involves widespread geographical distribution.

C) An epidemic results in higher mortality rates than a pandemic.

D) An epidemic occurs in immunocompromised individuals, while a pandemic affects the general population.

29. In the context of viral pathogenesis, what does the term "chronic disease" imply?

A) The disease will always result in the death of the host.

B) The virus remains in the host for long periods, causing persistent symptoms.

C) The host will develop lifelong immunity after the initial infection.

D) The virus undergoes a rapid mutation, leading to severe acute symptoms.

30. Which characteristic of the viral genome is critical for its ability to redirect host cell activities?

A) The presence of enzymes for protein synthesis

B) The ability to integrate into the host genome

C) The structure of nucleic acids, which can be single or double-stranded

D) The ability to form complex structures like the capsid

31. What mechanism allows enveloped viruses to evade host immune responses?

- A) They produce toxins that kill immune cells.
- B) They modify their surface proteins regularly.
- C) They incorporate host cell membrane components into their envelope.
- D) They replicate more rapidly than the immune response can adapt.

32. How does the presence of a lipid-containing envelope affect a virus's stability in the environment?

- A) It increases the virus's resistance to disinfectants.
- B) It enhances the virus's ability to survive on surfaces for extended periods.
- C) It makes the virus more susceptible to environmental factors like heat and desiccation.
- D) It allows the virus to remain dormant until conditions are favorable for infection.

Answers

- 25. B
- 26. A
- 27. D
- 28. B
- 29. B
- 30. C
- 31. C
- 32. C

33. What is the significance of the term "virion" in virology?

- A) It refers to the complete virus particle that can infect a host cell.
- B) It describes the genetic material of the virus alone.
- C) It indicates a virus that has lost its ability to infect.
- D) It refers to the immune response generated by a viral infection.

34. Which structural characteristic is unique to enveloped viruses compared to non-enveloped viruses?

- A) They have a more complex capsid structure.
- B) They contain glycoprotein spikes for attachment to host cells.
- C) They are generally larger in size.
- D) They replicate faster than non-enveloped viruses.

35. What critical role do viral glycoproteins play in the life cycle of a virus?

- A) They provide energy for viral replication.
- B) They are essential for the assembly of the viral capsid.
- C) They facilitate the attachment of the virus to specific host cell receptors.
- D) They serve as the primary genetic material of the virus.

36. In what way do positive-sense RNA viruses utilize the host cell's machinery upon entry?

- A) They immediately replicate their RNA into DNA.
- B) They directly serve as messenger RNA for protein synthesis.
- C) They require a host enzyme to convert their RNA into mRNA.
- D) They integrate into the host genome before any replication occurs.

37. What determines the host range of a virus, and why is it significant?

- A) The type of nucleic acid present; it affects the virus's replication speed.
- B) The structure of the capsid; it influences the virus's stability.
- C) The presence of specific receptors on host cells; it affects transmission dynamics.
- D) The viral envelope; it determines the virus's ability to infect.

38. How does the concept of "metabolically inert" apply to viruses?

- A) Viruses can metabolize nutrients outside the host.
- B) Viruses lack metabolic activity and require host cells for replication.
- C) Viruses can replicate independently without host cells.
- D) Viruses have complex metabolic pathways similar to bacteria.

39. Why is the study of viral taxonomy important in understanding viral outbreaks?

- A) It helps identify the geographic origins of viruses.
- B) It enables the prediction of viral mutations and adaptations.
- C) It aids in the development of targeted antiviral therapies.
- D) It allows for the classification of viruses based on symptom severity.

40. What distinguishes a broad-spectrum virus from a limited-range virus?

- A) A broad-spectrum virus infects only one species, while a limited-range virus infects multiple.
- B) A broad-spectrum virus can infect multiple species, whereas a limited-range virus infects a specific host or cell type.
- C) A broad-spectrum virus is less pathogenic than a limited-range virus.
- D) A broad-spectrum virus has a more complex structure than a limited-range virus.

Answers

- 33. A
- 34. B
- 35. C
- 36. B
- 37. C
- 38. B
- 39. C
- 40. B

41. **What is a defining characteristic of obligate intracellular parasites like viruses?**
- A) They can reproduce independently in the environment.
 - B) They require a host cell's metabolic processes for replication.
 - C) They can survive without a host cell indefinitely.
 - D) They have complex organelles that aid in reproduction.
42. **In the context of viral infection, what does the term "nucleocapsid" refer to?**
- A) The complete virus particle, including its envelope.
 - B) The combination of the viral nucleic acid and its protective protein coat (capsid).
 - C) The viral RNA or DNA alone.
 - D) The outer lipid layer of the virus.
43. **How does the structure of a viral envelope influence its susceptibility to environmental conditions?**
- A) It provides additional stability against desiccation.
 - B) It makes the virus more susceptible to heat and solvents.
 - C) It allows for better transmission through respiratory droplets.
 - D) It protects the virus from being recognized by the immune system.
44. **What role do defective viruses play in viral pathogenesis?**
- A) They enhance the virulence of fully competent viruses.
 - B) They can cause diseases on their own without helper viruses.
 - C) They provide a mechanism for viral evolution through genetic reassortment.
 - D) They can limit the spread of more pathogenic strains.
45. **What is the consequence of a virus having a segmented genome?**
- A) It cannot undergo recombination with other viruses.
 - B) It can exchange genetic material more easily during co-infection.
 - C) It is limited in the types of cells it can infect.
 - D) It will always produce more virulent strains.
46. **Which factor contributes to the rapid mutation rates observed in RNA viruses compared to DNA viruses?**
- A) The presence of proofreading mechanisms in RNA replication.
 - B) The higher fidelity of RNA polymerases.
 - C) The lack of proofreader enzymes in RNA virus replication.
 - D) The stability of the RNA structure compared to DNA.
47. **Why might a pediatrician examine a child's feet when diagnosing foot-and-mouth disease?**

- A) To check for external signs of bacterial infections.
- B) To identify systemic symptoms indicative of viral infections.
- C) To assess potential rashes that could indicate other diseases.
- D) To confirm the presence of rashes that correlate with the diagnosis.

48. What is the role of peplomers in viral infection, specifically regarding host cell entry?

- A) They degrade the host cell membrane for easier entry.
- B) They bind to specific receptors on host cells to facilitate entry.
- C) They encapsulate viral DNA during replication.
- D) They trigger the immune response to combat the virus.

Answers

- 41. B
- 42. B
- 43. B
- 44. A
- 45. B
- 46. C
- 47. D
- 48. B

49. What is the primary function of the viral capsid?

- A) To facilitate viral entry into host cells.
- B) To protect the viral nucleic acid and aid in its stability.
- C) To stimulate the immune response in the host.
- D) To replicate the viral genome independently.

50. How do non-enveloped viruses typically differ in transmission methods compared to enveloped viruses?

- A) Non-enveloped viruses are more stable in harsh environments.
- B) Enveloped viruses require a vector for transmission, while non-enveloped do not.
- C) Non-enveloped viruses are always transmitted through direct contact.
- D) Enveloped viruses can only infect humans, while non-enveloped can infect animals.

51. What aspect of viral diversity is most directly related to the range of hosts a virus can infect?

- A) The type of nucleic acid it contains.
- B) The structure and composition of its capsid.
- C) The presence of specific glycoprotein receptors.
- D) The method of viral replication.

52. **Which mechanism allows for the emergence of new viral strains, such as those seen with influenza viruses?**
- A) Antigenic drift and antigenic shift.
 - B) Direct transmission from animals to humans.
 - C) Long-term infection in a single host.
 - D) The replication of defective viruses alongside competent ones.
53. **What distinguishes a virus with positive-sense RNA from one with negative-sense RNA?**
- A) Positive-sense RNA viruses can directly serve as mRNA, while negative-sense must be converted to mRNA first.
 - B) Negative-sense RNA viruses replicate faster than positive-sense RNA viruses.
 - C) Positive-sense RNA viruses are always enveloped, while negative-sense are not.
 - D) Negative-sense RNA viruses can only infect bacteria, while positive-sense infects all cells.
54. **What critical role does the lipid-containing envelope play during the viral replication cycle?**
- A) It assists in the assembly of new virions within the host cell.
 - B) It aids in the recognition of host cells and the entry process.
 - C) It provides structural support to the nucleic acid during replication.
 - D) It acts as a source of energy for the virus during infection.
55. **How do the characteristics of a broad-spectrum virus contribute to its potential impact on public health?**
- A) They are less likely to cause severe illness compared to limited-range viruses.
 - B) They can infect multiple host species, increasing the chances of zoonotic transmission.
 - C) They replicate more slowly, allowing for easier containment.
 - D) They typically have more effective vaccines available.
56. **Why is it challenging to develop vaccines for RNA viruses?**
- A) RNA viruses do not provoke an immune response.
 - B) The rapid mutation rates of RNA viruses can lead to antigenic variation.
 - C) RNA viruses are not pathogenic enough to warrant vaccination.
 - D) The structure of RNA makes it difficult to create stable vaccine formulations.

Answers

- 49. B
- 50. A

- 51. C
- 52. A
- 53. A
- 54. B
- 55. B
- 56. B

57. What is the role of the capsomeres in viral structure?

- A) They form the lipid envelope of the virus.
- B) They are the protein subunits that assemble to form the capsid.
- C) They facilitate the binding of the virus to host cell receptors.
- D) They are involved in the replication of viral RNA.

58. How does the integration of viral genetic material into a host's DNA affect the host cell?

- A) It always results in cell death immediately.
- B) It may lead to the production of viral proteins, causing chronic infection.
- C) It enhances the host cell's immune response against other pathogens.
- D) It prevents the host from replicating its own DNA.

59. What distinguishes a pandemic from an epidemic in terms of viral spread and impact?

- A) A pandemic affects only immunocompromised individuals, while an epidemic affects healthy populations.
- B) A pandemic is a global outbreak affecting a large number of people, whereas an epidemic is more localized.
- C) An epidemic results from the introduction of a new virus, while a pandemic arises from an existing virus.
- D) A pandemic is always more deadly than an epidemic.

60. What is the primary reason viruses are classified based on their genomic properties?

- A) To predict their pathogenicity in humans.
- B) To facilitate the development of antiviral treatments.
- C) To understand their evolutionary relationships and mechanisms of infection.
- D) To simplify the vaccine development process.

61. In what way do glycoprotein spikes on enveloped viruses contribute to infection?

- A) They act as enzymes to break down the host cell membrane.
- B) They provide structural support to the viral particle.
- C) They enable the virus to attach to specific receptors on host cells.
- D) They assist in the replication of viral nucleic acids.

62. **What is a potential consequence of rapid viral mutations on public health strategies?**

- A) It leads to a more effective immune response in the population.
- B) It can result in vaccine failure due to antigenic variation.
- C) It allows for easier development of broad-spectrum antiviral drugs.
- D) It enhances the stability of existing vaccines.

63. **How does the definition of a virus as an "obligate parasite" inform our understanding of its replication process?**

- A) It implies that viruses can replicate outside of a host cell.
- B) It indicates that viruses depend entirely on the host's cellular machinery for reproduction.
- C) It suggests that viruses can cause disease without infecting host cells.
- D) It means that viruses can survive in harsh environmental conditions.

64. **What distinguishes the concept of a "defective virus" from a typical virus in terms of replication?**

- A) Defective viruses can replicate without a host cell.
- B) They require a helper virus for successful replication.
- C) Defective viruses are always more pathogenic than typical viruses.
- D) They can replicate independently in the environment.

Answers

- 57. B
- 58. B
- 59. B
- 60. C
- 61. C
- 62. B
- 63. B
- 64. B

65. **What is the primary reason that viral infections are often more difficult to treat than bacterial infections?**

- A) Viruses are always more pathogenic than bacteria.
- B) Viruses replicate within host cells, making them harder to target without harming the host.
- C) Bacteria have more available treatment options than viruses.
- D) Viral mutations occur at a slower rate than bacterial mutations.

66. **How does the presence of an envelope affect the stability of a virus outside a host?**

- A) It increases the virus's ability to survive in dry conditions.
- B) It generally makes the virus more susceptible to environmental factors such

as heat and detergents.

C) It enhances the virus's resistance to disinfectants.

D) It allows the virus to remain viable for longer periods in the air.

67. What is a potential impact of viruses that can infect a wide variety of hosts (broad-spectrum viruses)?

A) They typically cause less severe diseases than limited-range viruses.

B) They pose a greater risk of zoonotic transmission to humans.

C) They are easier to eradicate from the environment.

D) They have lower mutation rates compared to more specialized viruses.

68. In the context of viral pathogenesis, what is the importance of studying host cell receptors?

A) It helps to develop antiviral drugs that block receptor sites.

B) It provides insights into the evolutionary history of viruses.

C) It allows for the identification of all possible host species.

D) It helps to understand the immune response mechanisms of the host.

69. What does the term "antigenic drift" refer to in virology?

A) A significant shift in the genetic makeup of a virus, leading to new strains.

B) Minor changes in viral antigens that occur over time, allowing evasion of immune detection.

C) The process by which a virus acquires genes from a host cell.

D) The immediate response of the immune system to a viral infection.

70. What is the significance of viral replication occurring inside the host cell?

A) It allows the virus to remain undetected by the immune system.

B) It prevents the host from developing any immune response.

C) It ensures that the virus can survive in the external environment.

D) It facilitates the exchange of genetic material between different viral strains.

71. How can understanding the mechanisms of viral transmission help in controlling outbreaks?

A) It allows for the immediate creation of vaccines.

B) It enables the identification of high-risk populations for targeted interventions.

C) It facilitates the development of antiviral drugs.

D) It helps predict which viruses will become endemic.

72. What is the relationship between the viral genome structure and its mode of replication?

A) Single-stranded viruses always replicate faster than double-stranded viruses.

- B) Circular DNA viruses do not require a host for replication.
C) The genome structure determines how the virus uses the host's machinery for replication.
D) RNA viruses always require the host's DNA for replication.

Answers

65. B
66. B
67. B
68. A
69. B
70. A
71. B
72. C

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