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Level: HL IB in Biology

Subject: Biology

Topic: IB HL Biology

Type: Topic Question

2002

XVIII

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All International Baccalaureate IB Topic Questions HL Biology

BIOLOGY

HL - IB

Key skills

Question 1

Which of the following accurately describes the role of reverse transcriptase in retroviruses?

- A. It transcribes viral RNA into DNA.
- B. It converts host cell DNA into RNA for viral replication.
- C. It integrates viral RNA into the host genome.
- D. It transcribes viral proteins directly from RNA.

[1 mark]

Question 2

How do viruses such as influenza exhibit antigenic drift?

- A. Through the exchange of genetic material between different viral strains.
- B. By gradual accumulation of mutations in genes coding for surface proteins.
- C. By shifting from one host species to another.
- D. Through rapid replication that leads to complete genome replication errors.

EXAM PAPERS PRACTICE [1 mark]

Question 3

Which of the following best explains why antibiotics are ineffective against viruses?

- A. Viruses have a cell wall structure that resists antibiotic penetration.
- B. Viruses do not have metabolic pathways that antibiotics target.
- C. Viral proteins are resistant to antibiotic mechanisms.
- D. Antibiotics only target bacterial DNA replication, which viruses do not perform.

[1 mark]

Question 4

Which of the following is a characteristic of the lytic cycle of viral replication?

- A. Viral DNA is integrated into the host genome, where it remains dormant.
- B. The host cell remains alive and continues to produce viral particles.
- C. The viral genome takes over host cell machinery to replicate and eventually causes cell lysis.
- D. Viral particles are released by budding, leaving the host cell intact.

[1 mark]

Question 5

Which of the following components of a virus is *most essential* for attaching to and entering a host cell?

- A. Capsid proteins
- B. Envelope lipids
- C. Glycoproteins on the viral envelope
- D. Viral RNA or DNA

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[1 mark]

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Question 6

What is the primary advantage of a virus having a high mutation rate?

- A. It allows the virus to evade the immune system more effectively.
- B. It increases the virus's ability to infect a wide range of host species.
- C. It reduces the time needed for viral replication.
- D. It improves the virus's structural integrity, making it more stable.

[1 mark]

Question 7

Which of the following best describes a viral latency period?

- A. The virus is actively replicating, but its effects are not yet visible.
- B. The virus remains dormant within the host cell without causing immediate damage.
- C. The virus is infecting multiple host cells simultaneously.
- D. The host's immune system has cleared the virus, but reinfection is possible.

[1 mark]



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