Q49

Consider the following statements: I. No virus can survive in ocean waters. II. No virus can infect bacteria. III. No virus can change the cellular transcriptional activity in host cells. How many of the statements given above are correct? (a) Only one (b) Only two (c) All the three (d) None Official key: D.

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Explanation

(a)

Only one. All three 'no virus can...' lines are false.

(b)

Only two. There is no correct pair here.

(c)

All three. Viruses do survive in oceans, infect bacteria (bacteriophages), and alter host transcription.

(d) Official key

None. Each absolute 'no virus can' claim fails.

Summary

Official Set A key is (d) none. Oceans are full of viruses. Bacteriophages infect bacteria. Viruses routinely hijack host transcription. I, II and III are all false universals. The official count of correct statements is zero.

Related possible facts

These can be asked in a future Prelims paper.

Bacteriophage (phage)

A virus that infects bacteria. Used in phage therapy as an antibiotic alternative. In the news around Kumbh water quality.

Marine viruses

The most numerous biological entities in the ocean. They lyse microbes and move nutrients in the viral shunt.

Viral shunt

Viral lysis of marine microbes recycles carbon and nutrients in the surface ocean instead of sending them up the food web.

Transcriptional hijack

Many viruses reprogram host gene expression so the cell makes viral proteins. That is why III is a false absolute.

Archaea viruses

Viruses also infect archaea. The same neighbourhood as phages in 'who can a virus infect?' questions.