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Q59

Which of the following statements is/are correct? Viruses can infect 1. bacteria 2. fungi 3. plants Select the correct answer using the code given below (a) 1 and 2 only (b) 3 only (c) 1 and 3 only (d) 1, 2 and 3 Official key: D.

UPSC Civil Services Prelims 2016 · General Studies · 2 marks · Science and Technology

Science, technology, space, defence, IT - Prelims GS Paper I.

Explanation**(a)**

Viruses that infect bacteria (bacteriophages) and fungi (mycoviruses) are real, but plant viruses are equally well established. Stopping at 1 and 2 therefore omits a correct **host** group.

(b)

Plants alone would ignore bacteriophages and fungal viruses. 3 only is incomplete.

(c)

Bacteria and plants without fungi would omit mycoviruses, which infect fungi. 1 and 3 only is therefore not the key.

(d) Official key

Viruses are obligate intracellular parasites and can infect bacteria, fungi and plants (as well as animals and protozoa). Bacteriophages, mycoviruses and classic plant viruses such as **tobacco mosaic virus** illustrate all three. Hence 1, 2 and 3 is the official key.

Summary

Official key is (d) 1, 2 and 3. A virus needs a living **host** cell; the **host** may be a prokaryote or a eukaryote. Bacteriophages infect bacteria; many RNA/DNA viruses infect fungi; plants suffer mosaic, leaf-curl and other viral diseases. There is no biological bar that confines viruses to animals only. All three listed groups can be infected.

Related possible facts

These can be asked in a future Prelims paper.

Bacteriophage

Virus that infects bacteria; used in phage typing and research

Tobacco mosaic virus

First virus discovered; infects plants

Mycovirus

Virus that infects fungi, often dsRNA

Viroid

Infectious naked RNA in plants; not a conventional virus

Host range

Determined by receptors and intracellular compatibility

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