Q39

With reference to Visible Light Communication (VLC) technology, which of the following statements are correct? 1. VLC uses electromagnetic spectrum wavelengths 375 to 780 nm. 2. VLC is known as long-range optical wireless communication. 3. VLC can transmit large amounts of data faster than Bluetooth. 4. VLC has no electromagnetic interference. Select the correct answer using the code given below: (a) 1, 2 and 3 only (b) 1, 2 and 4 only (c) 1, 3 and 4 only (d) 2, 3 and 4 only Official key: C.

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Explanation

(a)

1, 2 and 3 only. VLC is typically short-range, not 'long-range optical wireless' as often worded.

(b)

1, 2 and 4 only. Keeps the long-range miss.

(c) Official key

1, 3 and 4 only. Visible-spectrum EM, multi-Gbps lab rates, no radio EMI. Not a long-range system as statement 2 claims.

(d)

2, 3 and 4 only. Drops the spectrum limb.

Summary

Official key is (c) 1, 3 and 4 only. VLC/Li-Fi uses visible light (roughly 375-780 nm), can exceed 10 Gbps in tests, and does not add radio interference. It is a short-range, line-of-sight tool, not long-range optical wireless.

Related possible facts

These can be asked in a future Prelims paper.

Li-Fi
Harald Haas; LED modulation.

IR / Li-Fi range
Room-scale; walls stop it.