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Q41

When reference to carbon nanotubes, consider the following statements: 1. They can be used as carriers of drugs and antigens in the human body. 2. They can be made into artificial blood capillaries for an injured part of human body. 3. They can be used in biochemical sensors. 4. Carbon nanotubes are biodegradable. Which of the statements given above are correct? (a) 1 and 2 only (b) 2, 3 and 4 only (c) 1, 3 and 4 only (d) 1, 2, 3 and 4 Official key: C.

UPSC Civil Services Prelims 2020 · General Studies · 2 marks · Art and Culture

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Explanation

(a)

1 and 2 only. Artificial capillaries as a working implant are not keyed; biodegradability is.

(b)

2, 3 and 4 only. Keeps the capillary over-claim.

(c) Official key

1, 3 and 4 only. Drug/antigen carriers, biochemical sensors, and biodegradable CNTs. Statement 2's artificial capillaries is the miss.

(d)

All four. Statement 2 is not counted.

Summary

Official key is (c) 1, 3 and 4 only. Carbon nanotubes can carry drugs/antigens, serve in sensors, and can be biodegradable. Turning them into artificial blood capillaries is not the keyed use.

Related possible facts

These can be asked in a future Prelims paper.

CNT

Graphene cylinders; high aspect ratio.

Drug delivery

Functionalised CNTs crossing membranes.

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