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Q23

With reference to the use of nano technology in health sector, which of the following statements is/are correct? 1. Targeted drug delivery is made possible by nanotechnology. 2. Nanotechnology can largely contribute to gene therapy. Select the correct answer using the codes given below (a) 1 only (b) 2 only (c) Both 1 and 2 (d) Neither 1 nor 2 Official key: C.

UPSC Civil Services Prelims 2015 · General Studies · 2 marks · Science and Technology
Science, technology, space, defence, IT - Prelims GS Paper I.

Explanation**(a)**

(a) 1 only. Targeted drug delivery via nanoparticles is a real **nanomedicine** use, but **gene therapy** (vectors, nano-carriers for nucleic acids) is also a recognised contribution. 1 only is incomplete.

(b)

(b) 2 only. Gene-therapy applications exist, yet dropping targeted delivery ignores the most cited health use. 2 only is too narrow.

(c) Official key

(c) Both 1 and 2. Nanocarriers can deliver drugs to specific tissues, and nanotechnology is used in gene-delivery systems. Both statements are correct; that is the official key.

(d)

(d) Neither 1 nor 2. Both statements are accepted applications. Neither-nor is wrong.

Summary

Official key is (c) Both 1 and 2. Nanotechnology enables targeted drug delivery and contributes to gene-therapy delivery systems. Neither claim is speculative on this paper. The keyed answer is both statements.

Related possible facts

These can be asked in a future Prelims paper.

Nanomedicine

Medical use of materials at ~1-100 nm

Liposomes/nanoparticles

Common targeted-delivery vehicles

Gene therapy

Introducing nucleic acids to treat disease

Nano-vectors

Non-viral carriers for DNA/RNA

EPR effect

Enhanced permeability and retention in tumours

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