

WRAP Exams · wrapexams.com

Prelims PYQ, Mains model answers, and copy evaluation. Write to the desk for this paper, a doubt, or the AI waitlist.

ask@wrapexams.com · +91 85951 84903 · wrapexams.com

Q30

In the context of modern scientific research, consider the following statements about 'IceCube', a particle detector located at South Pole, which was recently in the news: 1. It is the world's largest neutrino detector, encompassing a cubic kilometre of ice. 2. It is a powerful telescope to search for dark matter. 3. It is buried deep in the ice. Which of the statements given above is/are correct? (a) 1 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3
Official key: D.

UPSC Civil Services Prelims 2015 · General Studies · 2 marks · Art and Culture

Indian art, architecture, culture - Prelims GS Paper I.

Explanation**(a)**

(a) 1 only. IceCube is the world's largest neutrino detector, using about a cubic kilometre of Antarctic ice, but it is also buried deep and used in dark-matter searches. 1 only is incomplete.

(b)

(b) 2 and 3 only. Dark-matter search and burial in ice are correct, yet omitting the cubic-kilometre neutrino-detector fact drops statement 1, which is true.

(c)

(c) 1 and 3 only. Size and burial are right, but IceCube is also used as a powerful instrument in the search for dark matter. Dropping 2 is wrong on this key.

(d) Official key

(d) 1, 2 and 3. IceCube instruments a cubic kilometre of ice at the South Pole, is buried deep, detects **neutrinos**, and is used in dark-matter searches. All three statements are treated as correct; that is the official key.

Summary

Official key is (d) 1, 2 and 3. IceCube is a cubic-kilometre neutrino observatory buried in South Pole ice and is also used to search for dark matter. None of the three statements is rejected on this paper. The keyed answer is the full set.

Related possible facts

These can be asked in a future Prelims paper.

IceCube location

Amundsen-Scott South Pole Station, Antarctica

Volume

About 1 km³ of ice

Digital Optical Modules

Photomultipliers on strings in the ice

Neutrinos

Nearly massless, weakly interacting particles

Related experiment

IceCube Upgrade / Gen2 proposals

WRAP Exams · Write. Read. Analyse. Practice. · <https://wrapexams.com/upsc/prelims/gs/2015/in-the-context-of-modern-scientific-research-consider-the-following-statements-about-icecube-a-particle-detector-located-at-south-pole-which-was-recently-in-the-news-1-it-is-the-worlds-largest-neutrino-detector/> · ask@wrapexams.com · wrapexams.com