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Q81

Consider the following statements: Statement I: Some rare earth elements are used in the manufacture of flat television, screens and computer monitors, Statement II: Some rare earth elements have phosphorescent properties. Which one of the following is correct in respect of the above statements? (a) Both Statement I and Statement II are correct and Statement II explains Statement I (b) Both Statement I and Statement II are correct but Statement II does not explain Statement I (c) Statement I is correct but Statement II is not correct (d) Statement I is not correct but Statement II is correct Official key: A.

UPSC Civil Services Prelims 2025 · General Studies · 2 marks · Art and Culture

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

Explanation**(a) Official key**

Both I and II are correct and II explains I. Rare earths in TV and monitor phosphors work because some REEs are phosphorescent / luminescent.

(b)

Both correct but II does not explain I. The phosphor property is exactly why they are in screens.

(c)

I correct, II not. They do have those optical properties.

(d)

I not, II correct. They are used in screens.

Summary

Official Set A key is (a). Some rare earths (e.g. europium, terbium, yttrium compounds) are used in display phosphors (I) because they luminesce / phosphoresce (II). II is why I is true.

Related possible facts

These can be asked in a future Prelims paper.

Rare earth elements

Lanthanides plus Sc and Y. Magnets, phosphors, catalysts.

Europium / terbium phosphors

Red and green in fluorescent lamps and some displays. Why II is true.

NdFeB magnets

The EV and wind neighbour, not this phosphor question.

Monazite / IREL

India's beach-sand REE file.

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