Q25

In the context of which of the following do some scientists suggest the used of cirrus cloud thinning technique and the injection of sulphate aerosol into stratosphere? (a) Creating the artificial rains in some regions (b) Reducing the frequency and intensity of tropical cyclones (c) Reducing the adverse effects of solar wind on the Earth (d) Reducing the global warming Official key: D.

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Explanation

(a)

(a) Creating artificial rains. Cloud seeding for rain is a different, tropospheric weather-modification idea, not cirrus thinning plus stratospheric sulphate, so this is not the key.

(b)

(b) Reducing tropical cyclones. Geoengineering literature does not frame these two techniques as cyclone control, so this is not the key.

(c)

(c) Reducing adverse effects of solar wind. Solar wind is a space-weather problem; cirrus thinning and sulphate injection are climate geoengineering, so this is not the key.

(d) Official key

(d) Reducing global warming. Cirrus cloud thinning (to let more longwave escape) and stratospheric sulphate aerosols (to reflect sunlight) are solar-radiation-management / climate-geoengineering proposals aimed at cooling the planet. That purpose is the official key.

Summary

Official key is (d) reducing global warming. Both named techniques are geoengineering levers: thin high ice clouds to increase outgoing heat, or mimic volcanoes with stratospheric sulphate. They are not rain-making, cyclone-taming or solar-wind shields. Honour the stored letter (d).

Related possible facts

These can be asked in a future Prelims paper.

SRM

Solar radiation management

Cirrus thinning
Reduce trapping of longwave radiation

Sulphate injection
Stratospheric albedo increase

Analogue
Volcanic cooling after Pinatubo

Askable twin
Marine cloud brightening; CDR versus SRM