Geography · GS - I

What are Tsunamis? How and where are they formed? What are their consequences? Explain with examples.

EXAM YEAR	PAPER	SUBJECT
2025	GS - I	Geography

MARKS	WORD LIMIT
10	~150 words

Answer Hint

Tsunami, undersea earthquake, subduction zones, vertical displacement, Indian Ocean, coastal inundation, 2004 tsunami, warning systems

Model Answer

Introduction

A tsunami is a series of long-period ocean waves generated by sudden displacement of a large volume of seawater, generally due to submarine earthquakes.

1. Formation

Most tsunamis originate at convergent plate boundaries, particularly subduction zones. A powerful undersea earthquake causing vertical displacement of the seabed can displace seawater and generate waves that propagate across the ocean.

They may also result from submarine landslides or volcanic eruptions.

2. Geographic Occurrence

The Pacific Ring of Fire is particularly tsunami-prone because of intense tectonic activity. The Indian Ocean is also vulnerable.

3. Consequences

Near the coast, waves slow down and increase dramatically in height, causing inundation, destruction of infrastructure, deaths and displacement. Saltwater intrusion can damage agricultural land and freshwater sources.

4. Example

The 2004 Indian Ocean tsunami severely affected Indonesia, Sri Lanka, India and other coastal areas.

Conclusion

Effective early-warning systems, coastal preparedness, evacuation planning and resilient infrastructure are essential for reducing tsunami vulnerability.

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