



## Mains Practice Question

**Q.** Cyclones are natural disasters that pose significant threats to coastal regions. Discuss the formation, characteristics, and impact of cyclones. (250 Words)

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### Approach

- Start your answer by briefly defining cyclone and how they threaten the coastal regions.
- In the body section, discuss the formation, characteristics and impact of cyclones on coastal regions.
- Conclude with way forward measures.

### Introduction

Cyclones are powerful tropical weather systems that can cause widespread destruction and pose significant threats to coastal regions. Coastal regions are particularly vulnerable to the impacts of cyclones due to their proximity to the ocean. These natural disasters are characterized by strong winds, heavy rainfall, storm surges, etc.

### Body

- **Formation:**
  - A cyclone is created when warm, moist air rises upward over the ocean. As the air moves up, a low-pressure area forms below it.
  - This low-pressure area is then filled with high-pressure air from the surrounding areas. The next batch of cool air then becomes warm and moist over the ocean, moving upward and forming another low-pressure area.
  - This cycle continues, resulting in cloud formation in the air. More clouds are formed as water from the ocean evaporates, leading to the formation of a storm system.
  - As the storm system rotates faster, an eye is formed in the centre. The eye of the storm is an area of low air pressure.
- **Characteristics:**
  - They are large air masses that rotate around a low-pressure centre.
  - They can be classified into different types, such as extratropical, tropical, subtropical, etc.
  - They can cause bad weather conditions, such as clouds, heavy rains, and storms.
  - They move counterclockwise in the northern hemisphere and clockwise in the southern hemisphere.
  - They form over warm ocean waters (27°C) near the equator.
- **Impact on Coastal Regions:**
  - Strong winds can cause widespread destruction of buildings, infrastructure, and vegetation.
  - Heavy rainfall leads to flooding, which can result in loss of life, damage to property, and disruption of essential services.
  - Storm surge causes coastal flooding, submerging low-lying areas and eroding coastlines.
  - Disruption of transportation and communication systems hinders emergency response and recovery efforts.
  - Power outages occur due to downed power lines and damaged electrical infrastructure.

- Contamination of water sources and increased risk of waterborne diseases due to flooding.
- Economic losses from damaged agriculture, disrupted industries, and increased reconstruction costs.
- Displacement of people from their homes, leading to temporary or long-term displacement and strain on resources.
- Loss of life and injuries due to direct impact, structural collapse, or secondary hazards such as landslides.

## Conclusion

- Cyclones are natural disasters that pose significant threats to coastal regions. Effective disaster preparedness, early warning systems, and mitigation measures are essential in reducing the impact of cyclones and ensuring the safety and resilience of coastal communities.

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