



## Mains Practice Question

**Q.** What do you understand by tropical cyclones? Elaborate how tropical cyclones differ from the temperate cyclones. (250 words)

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### Approach

- In introduction, explain the phenomenon of tropical cyclones and in brief its area of influence.
- In body, compare how tropical cyclones differ the temperate cyclones in terms of their characteristics such as area of occurrence, expanse, wind speed, their impact etc.
- Conclude suitably.

### Introduction

- Tropical cyclones are an **intense circular storm that originates over warm tropical oceans** and is characterized by low atmospheric pressure, high winds, and heavy rain.
- Tropical cyclones develop in the region between the Tropics of Capricorn and Cancer. They are large-scale weather systems developing over tropical or subtropical waters, where they get organized into surface wind circulation.

### Body

- Major differences between tropical and temperate cyclones:

	TROPICAL CYCLONE	TEMPERATE CYCLONE
<b>ORIGIN</b>	<b>Thermal origin-</b> Tropical cyclones typically form over large bodies of relatively warm water.	<b>Dynamic origin-</b> They are formed due to interaction of warm and cold air masses.
<b>LATITUDE</b>	Confined to 10 - 30 degree N and S of the equator.	Confined to 35 - 65 degree N and S of the equator. They are more pronounced in the Northern hemisphere due to greater temperature contrast owing to large expanse of landmass.
<b>FRONTAL SYSTEM</b>	Frontal system is absent in tropical cyclones	The very cyclone formation is due to frontogenesis.
<b>FORMATION</b>	They form only on seas with temperatures more than 26-27 degree C. They dissipate on reaching the land.	Temperate cyclones can be formed on both land and sea
<b>SEASON</b>	Tropical cyclones are seasonal in nature, it mostly occurs in late summers (Aug - Oct)	Temperate cyclones are irregular in nature but they occur more in winters and few in summers

<b>WIND VELOCITY AND DESTRUCTION</b>	Wind velocity of tropical cyclones is much greater (100 – 250 kmph) (200–1200 kmph in upper troposphere)  Greater destruction due to <b>winds, storm surges and torrential rains.</b>	Wind velocity in temperate cyclones is comparatively low. Typical range: 30 – 150 kmph.  Less destruction due to winds but more destruction due to <b>flooding.</b>
<b>SHAPE</b>	Tropical cyclones are elliptical in shape.	The shape of temperate cyclones is 'inverted V'.
<b>LIFETIME</b>	Tropical cyclones don't last for more than a week.	Temperate cyclones may last for 2 to 3 weeks.
<b>PATH</b>	They generally move from east to west.	They move from west to east.
<b>INFLUENCE ON INDIA</b>	Tropical cyclones affect both the coasts of India but the east coast is a hot spot.	Temperate cyclones bring rains to north-west India. The associated instability is called 'Western Disturbances'.

## Conclusion

Although Tropical cyclones are known for destruction they cause, when they strike they also bestow certain benefits like- they carry heat and energy away from tropics, relieve drought conditions etc. With the advent of climate change, tropical cyclones have become more frequent accompanied by great intensity.

Tropical cyclones are very frequent in India and thus it is one of the worst affected areas in the world. The most recent is Cyclone Amphan which turned into a "super cyclonic storm".