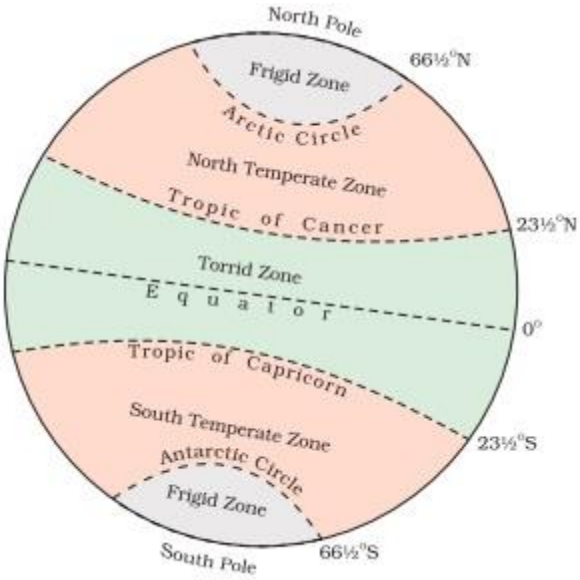
D. Answer the following question in 16-20 words

Q1. What is parallels of latitude?

Answer: These imaginary lines running east-west are commonly known as the parallels of latitude.

(Some vital Parallels of Latitudes with reference to earth are listed below

- **Tropic of Cancer in the Northern Hemisphere measuring around 23½° N**
- **Tropic of Capricorn in the Southern Hemisphere measuring around 23½° S.**
- **Arctic Circle which is at 66½° north of the equator.**
- **Antarctic Circle which is at 66½° south of the equator.)**

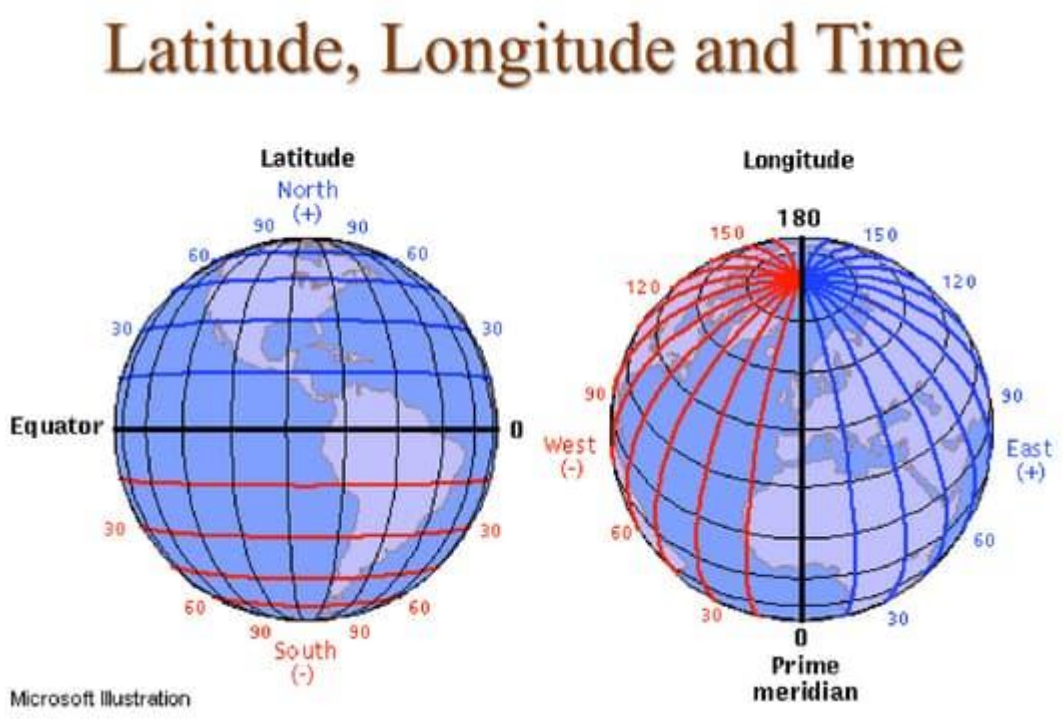


Q2. What are meridians of longitude?

Answer: The vertical lines running north-south, join the two poles. They are called the meridians of longitude. They are spaced farthest apart at the equator and converge at a point at each pole.

(Meridians of longitude

- The lines of reference running from the North Pole to the South Pole are known as meridians of longitude.
- The meridian which passes through Greenwich, where the British Royal Observatory is located. This meridian is regarded as the Prime Meridian.
- The value of this meridians is 0° longitude and from it we count 180° eastward as well as 180° westward.
- The Prime Meridian and 180° meridian divides the earth into two equal halves which is known as the Eastern Hemisphere and the Western Hemisphere**)**



Q3. Which are the hottest and the coldest zones of earth respectively?

Answer: The hottest zone of the Earth is known as the Torrid Zone; it lies between the Tropic of Cancer and the Tropic of Capricorn. This zone is really hot, as it receives direct sunrays all year round. The coldest zone of the Earth is known as the Frigid Zone.

Q4. What do you understand by local time?

Answer: A local time is a time calculated on the basis of a specific meridian passing through a particular place, though the place may be included in some other time zone. All the places located on the same meridian have noon at the same time. Places located on different meridians have different local times.

E. Answer the following questions in 50-70 words.

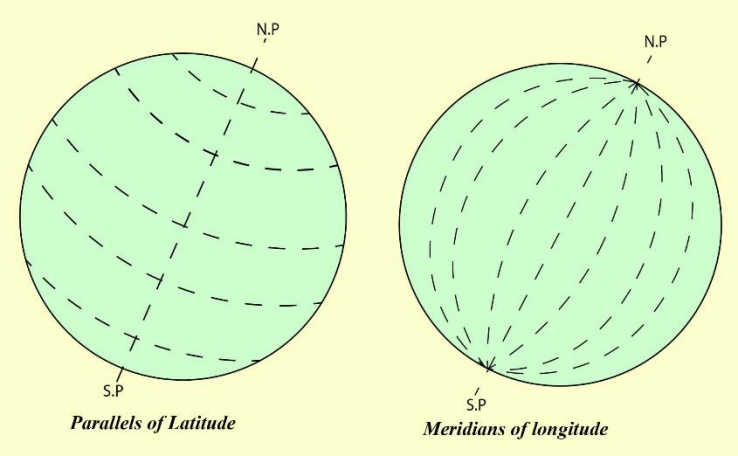
Q1. Distinguish between latitude and longitude.

Answer: Latitudes and longitudes are commonly referred to as geographical coordinates.

With the help of these coordinates, the location, distance and direction of various points can be easily determined. The locations on the Earth's surface are determined by two reference lines known as latitude and longitude. In the table below, we have given the various difference between latitude and longitude.

- Latitudes: All parallel circles from the equator up to the poles are called parallels of latitudes. Latitudes are measured in degrees.
- Longitudes: The vertical lines running north-south, join the two poles. They are called the meridians of longitude. They are spaced farthest apart at the equator and converge at a point at each pole.

Longitude	**Latitude**
These contain 360 longitudinal lines that measure east-to-west distance on the Prime Meridian.	These contain 180 latitudinal lines on the Prime Equator.
These lines are called meridians.	These lines are called parallels.
Classifies time zones.	Classifies heat zones.
They are imaginary lines that run through the surface of the earth vertically.	**Latitudes are horizontal lines that run across the earth's surface.**
They are used to determine the time zones across the earth.	Latitudes are imaginary lines that designate heat fields in different parts of the Earth.
With longitudes, we can measure east-to-west distance on the Prime Meridian.	Latitude measures the distance north or south of the equator.



Question. What is the importance of standard time?

ANSWER: Standard time is a uniform time for a particular area or a country. In a time zone, standard time is generally calculated according to the meridian lying at the centre of that zone.

The importance of having standard time can be understood with the help of the following points:

1. It helps in making schedules of trains.
2. It helps in making schedules of airline flights.
3. It helps in making schedules of meetings.
4. It helps in forecasting weather.

Question: What are time zones?

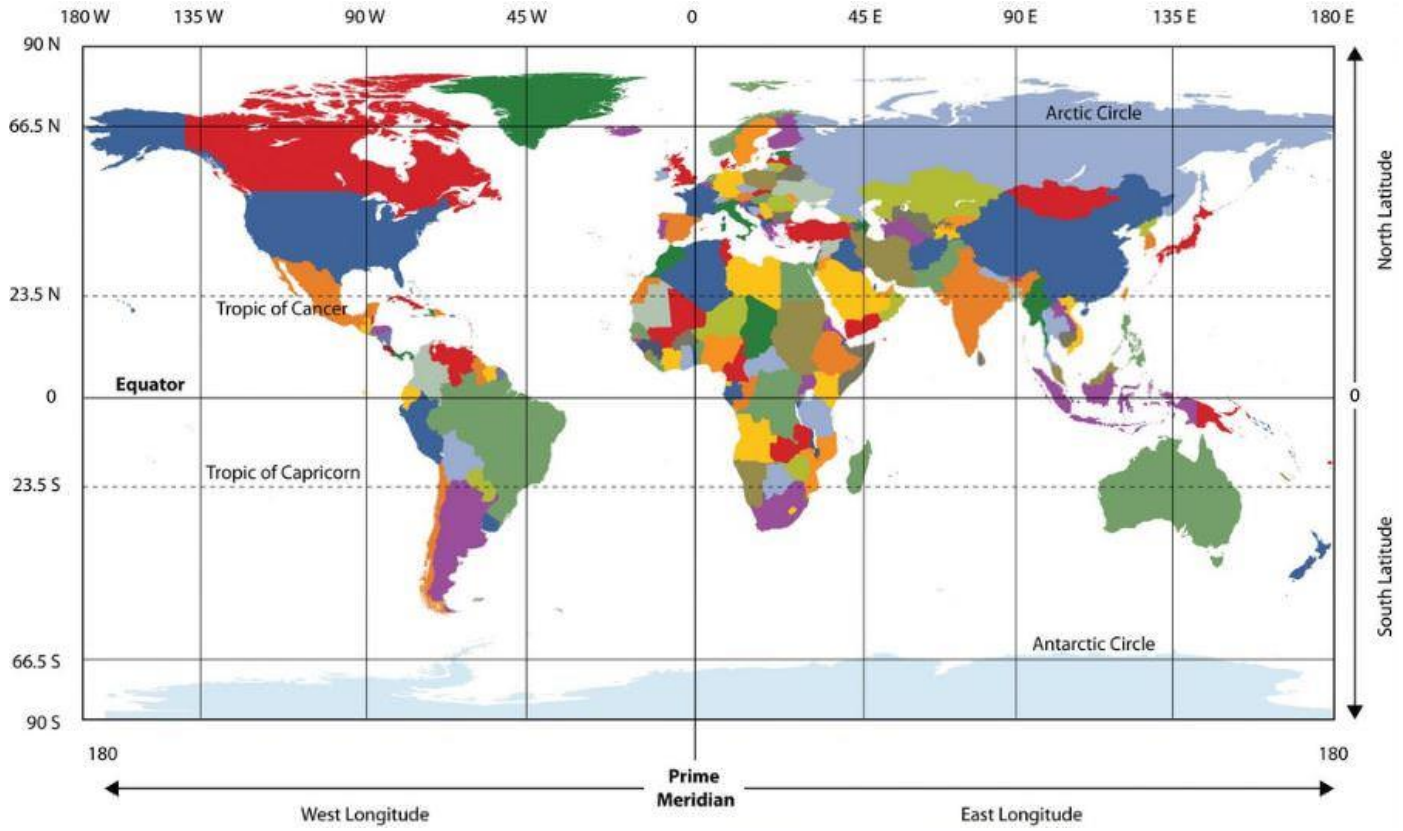
ANSWER: Time zones can be understood as areas on the Earth that are divided on the basis of longitudes and that have the same standard time. The Greenwich Meridian is the starting point that divides the Earth's surface into different time zones. Each time zone is 15^{o} or 7.5^{o} longitude wide and the local time is one hour or half hour earlier than the zone immediately to the east on the map.

Q2. What do the terms GMT and IST means?

Answer: The world's two most well-known time zones are Indian Standard Time (IST) and Greenwich Mean Time (GMT). GMT full form is Greenwich Mean Time, and IST full form is Indian Standard Time. Their respective nations employ both to determine the exact time in their nation. The difference between the GMT and IST is five and half an hour, i.e. the IST is ahead of GMT by 5 hours 30 minutes.

Q3. What is relationship between longitude and time?

Answer: There is a close relation between longitude and time. As the earth rotates from West to East, those places East of Greenwich will be ahead of Greenwich Time and those to the West will be behind it. The Earth makes one complete rotation of 360 degrees in 24 hours. It passes through 15 degrees is one hour or one degree in four minutes. Thus there is a difference of 4 minutes of time for one degree of longitude.



Q4. How is the equator different from the Prime Meridian?

Answer: The main difference between Equator and Prime Meridian is that Equator is the line circling the Earth halfway between the North and South poles while Prime Meridian is the line that runs through Greenwich, England.

- The Equator is the imaginary line around the middle of the Earth. The term 'equator' generally refers to a line (not a real one) drawn around a sphere or planet.
- The Prime Meridian is the imaginary line drawn north to south at 0° longitude. It is the starting point for measuring distance both west and east around the Earth.

F. Answer the following questions in 80-100 words:

Q1. Describe the three heat zones of the earth.

Answer: Heat Zones of the earth:

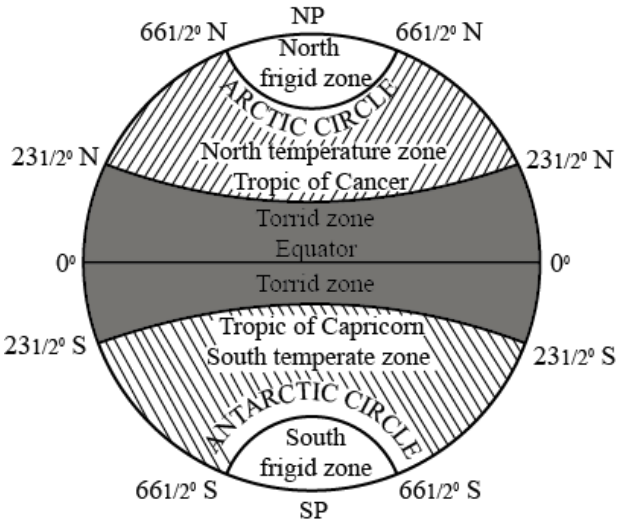
1. Torrid Zone: - Torrid means hot.
- This zone receives the maximum amount of heat throughout the year, because the rays of the Sun fall vertically on this zone. - This zone is located between the Tropic of Cancer (2312◦S).

2. Temperate Zone: - The temperate zones lie in both the hemispheres.

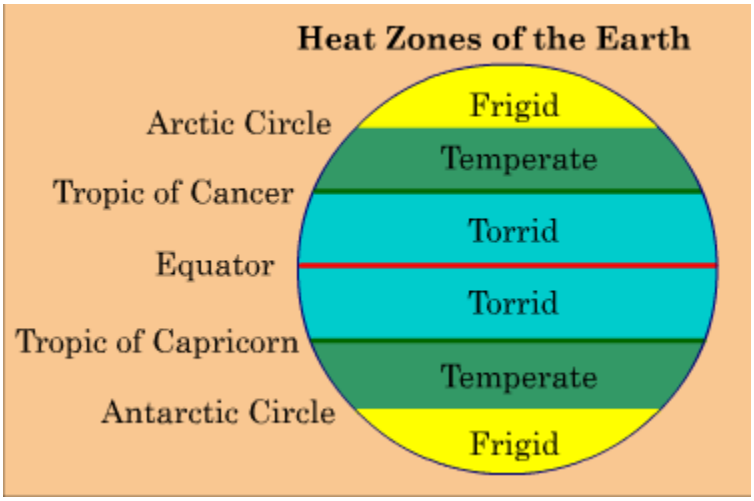
- North temperate zone lies in northern hemisphere between Tropic of Cancer and Arctic Circle.

- South temperate zone lies in the southern hemisphere between the Tropic of Capricorn and Antarctic Circle.

- These zones are neither too hot nor too cold.



Heat zones.



3. Frigid Zone: - Frigid means cold.

- Beyond the Arctic Circle and Antarctic Circle temperatures are very low and the climate is very cold.

- This is due to the extreme slanting of the Sun's rays.

- The North Frigid Zone lies between the Arctic Circle (6612◦N) and the North Pole in the Northern hemisphere.

- The South Frigid Zone lies between Antarctic Circle (6612◦S) and the South Pole in the Southern hemisphere.

Q2. What is importance of having a standard time? Explain by giving the example of India.

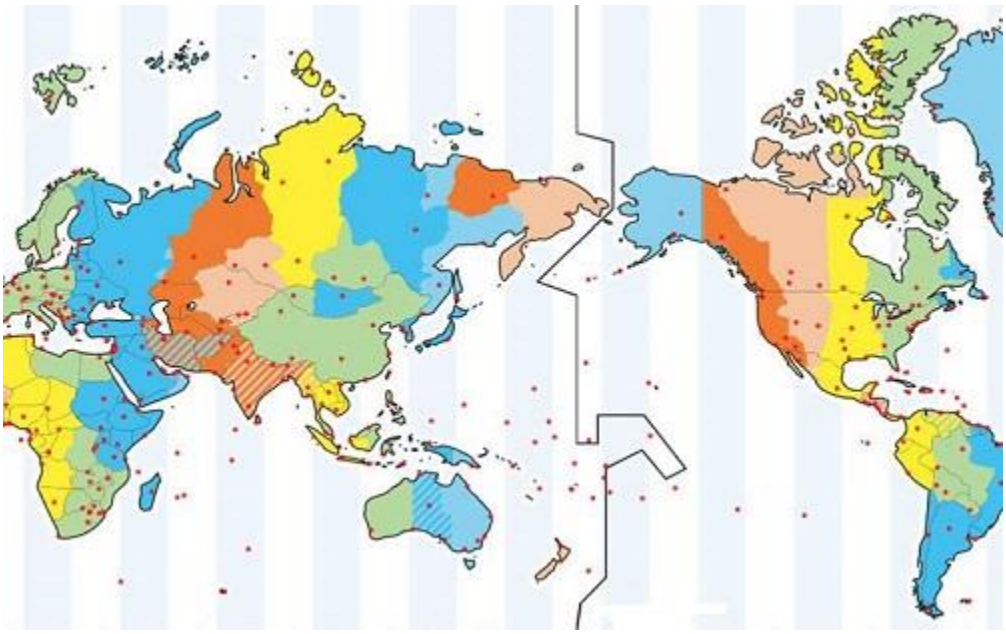
Answer: The places that lie on different meridians possess different local times. It is, therefore, essential to accept the local time of a country's central meridian as the standard time for the whole country to bring uniformity. In India, the local time at the Indian Standard Meridian is regarded as the standard time for the entire country.

The uniform time calculated by the Standard Meridian of India is referred to as the Indian standard time (IST). In India, the longitude of 82°E (82° 30' E) is considered as the standard meridian. The local time at this meridian is regarded as the standard time for the entire country. Time along India's Standard Meridian (82°30'E) that passes via Mirzapur, Uttar Pradesh, is considered as the standard time for the entire country. Otherwise, different Indian regions would have different times that would create confusions, so one common standard time for the entire country was chosen to avoid problems.

G. Think and Answer:

Question: Why do you think the International Date Line is not a straight line?

Answer: It is International Date Line which is drawn at 180 degree longitude to determine the date which is passed through the Arctic Oceans, Bering Strait, Pacific Ocean, Antarctica, Fiji, Tonga and other islands. If we see this imaginary line, then we found, it is not straight but zig-zag line.



But, if it is a straight line, then it demarcates the same land mass into two parts and then both places have different dates on the same day. It would be very inconvenient if one part of a country had one date of the week while another part would have the different date.

International Date Line marks the place where each day officially begins. At the international date line, the west side of the line has been always one day ahead of the East side, no matter what time of day it is when the line crossed.

It is an imaginary line made to go zig-zag in some regions, to avoid land area to leave island groups wholly on the same side of this line. It is done to avoid the confusion of having different dates in the same country.