6th – Globe- Latitudes And Longitudes

Globe is a true model (Miniature form) of the earth. On the globe, countries, continents and oceans are shown in their correct size.

Axis: - A needle is fixed through the globe in a tilted manner, which is called its axis. Two points on the globe through which the needle passes are the two poles- North Pole and South Pole.

Equator: - Imaginary line running on the globe divides it into two equal parts. This line is known as equator. The Northern half of the earth is known as the northern hemisphere and the southern half is known as the southern hemisphere.

Parallels of latitudes: - All parallel circles from the equator up to the poles are called parallels of latitudes. Latitudes are measured in degrees. The equator represents the zero degree latitude. Since the distance from the equator to either of the poles is $1/4^{th}$ of 360 degrees i.e. 90 degree. Thus, 90 degrees north latitudes mark the north pole and 90 degrees south latitude marks the south pole. As such, all parallels north of the equator are called 'north latitudes'. Similarly all parallels south of the equator are called 'south latitude'. For example, both Chandrapur in Maharashtra (India) and Belo Horizonte in Brazil (South America) are located on parallels of about 20 degree latitude.

Important parallels of latitudes:-

a) Tropic of cancer $23^{1/2^{\circ}}$ N in the northern hemisphere

b) Tropic of Capricorn $23^{1/2^{\circ}}$ S in the southern hemisphere

c) Arctic circle at $66^{1/2^{\circ}}$ north of the equator

d) Antarctic Circle at $66^{1/2}$ south of the equator.

Heat zones of the earth:-

Torrid Zone: - The mid-day sun is exactly overhead at least once a year on all latitudes in between the tropic of cancer and the tropic of Capricorn. This area, therefore, receives the maximum heat and is called the Torrid Zone.

Temperate Zone: - The mid- day sun never shines overhead on any latitude beyond the tropic of cancer and the tropic of Capricorn. The angle of the sun's rays goes on decreasing towards the poles. As such, the areas bounded by the tropic of cancer and the arctic circle in the northern hemisphere, and the tropic of Capricorn and the Antarctic circle in the Southern Hemisphere, have moderate temperatures. These are, therefore, called temperate zones.

Frigid zones: - Areas lying between the arctic circle and the north pole in the northern hemisphere and the Antarctic circle and the south pole in the southern hemisphere, are very cold. It is because here the sun does not rise much above the horizon. Therefore, its rays are always slanting and provide less heat. These are, therefore, called frigid zones (very cold).

Longitudes: - To find the location of places, that how far east or west these places are from a given line of reference running from North Pole to the South Pole. These lines of references are called the meridians of longitude. The imaginary lines that run vertically across the surface of the earth, from the north pole to the south pole, are called lines of longitude or meridians.

Prime meridian: - The meridian which passed through Greenwich in England where the British Royal Observatory is located. This meridian is called the Prime Meridian. The Prime Meridian is the 0^0 longitude and from it we count 180^0 eastward as well as 180^0 westward. It divides the earth into eastern and western

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hemisphere. Both the horizontal and vertical coordinates are needed to locate a place on the earth surface.

Earth Grid: - The lines of latitude and longitude intersect at right angles. The grid formed by these criss-crossing lines is called the geographic grid or the Earth grid.

Longitude and time: - Local time can be reckoned by the shadow cast by the sun, which is the shortest at noon and longest at sunrise and sunset. When the prime meridian of green which has the sun at the highest point in the sky all the places along their meridian will have mid day or noon. 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.

Indian standard time:-The local time of place depends on the meridian of longitude that passes through it. There are several longitudes passes through India. There would be great confusion if each place in the country followed its local time. It would not be possible to prepare a common railway or airlines time table for the country if each place were to follow a different local time. To avoid this confusion, most countries follow a standard time. In India the longitude of $82^{\circ}30$ E is treated as the standard meridian. The local time at this meridian is taken as the standard time for the whole country. It is known as the Indian standard time (IST). The central meridian passes through Mirzapur near Allahabad.

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