

MIS

Q1] Three basic type of communication satellite are :

- i) GEO (Geostationary Orbit)
- ii) MEO (Medium Earth Orbit)
- iii) LEO (Low Earth Orbit)

These satellites are placed different on their intended use. They are differentiated between 3 types of orbits.

① GEO

Geostationary Orbit is the easiest of the three to operate in. That is because the satellite will simply stay above a selected area known as 'coverage area' and transmit or receive data continuously. Satellite in this orbit allow for permanent communication links and are usually situated around 36,000 km altitude.

② MEO

Medium Earth Orbit is the middle ground between the two. With an altitude of around 20,000 km, satellites placed in this orbit have traditionally been used for navigation. The GNSS (Global Navigation Satellite System) orbits at this height and includes Europe's Galileo & USA's GPS. The use of communication satellites in this orbit has recently begun.

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③ LEO &

Low Earth Orbit is the one that focuses on transmission speed. The low ~~attn~~ altitude minimizes the delay due to the distance traveled by the signal. However, because the satellite orbits so close to the planet, it means that it will have coverage over one area for a very short time (10-20 minutes).

To ensure continuous service, a constellation of satellites is used. Such satellites usually orbit around 300-2000 km above the equator.

Type	Characteristics	Orbit	Number	Use
• GEO	<ul style="list-style-type: none"> - longest orbit life - Transmission delay (2.5 sec) - stationary to point on earth 	22,300 miles	8	TV signal
• MEO	<ul style="list-style-type: none"> - moderate orbit life (6-12) yrs - medium-powered transmitters - less expensive to build & launch - Negligible transmission delay - moderate number needed for global coverage 	6,434	10-12	GPS

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Type	Characteristic	Orbit	Number	Use
LEO		400-700	Many	Telephone

- move rapidly relative to point on Earth
- largest number needed for global coverage
- least expensive
- shortest orbit life (5 years)
- Negligible transmission delay