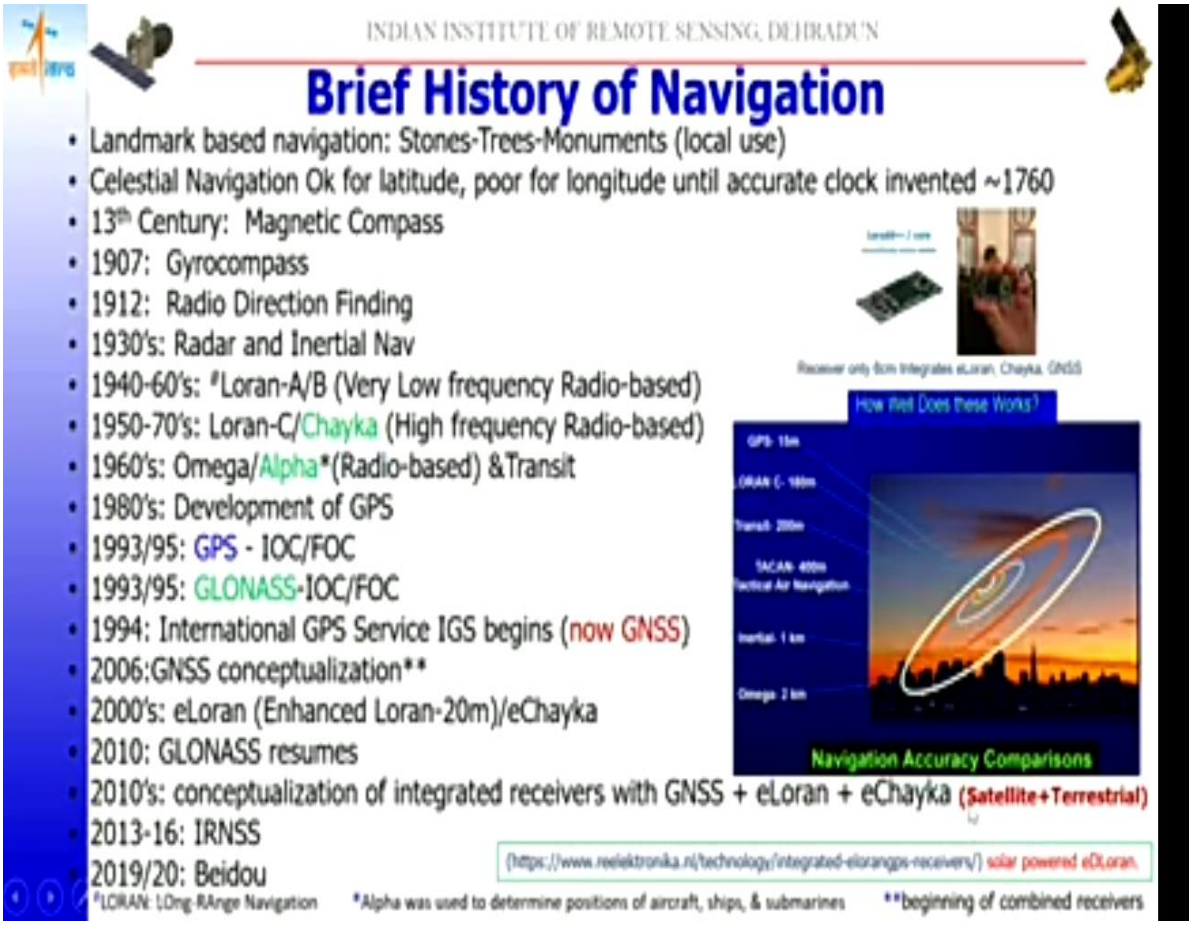
DAILY ASSESSMENT REPORT

Date:	**02 July 2020**	**Name:**	**Gagan M K**
Course:	**Satellite Photogrammetry and its applications**	**USN:**	**4AL17EC032**
Topic:	• **Introduction to Global Positioning System**	**Semester & Section:**	**6th sem & 'A' sec**
GitHub Repository:	**Alvas-education-foundation/Gagan-Git**		

FORENOON SESSION DETAILS
Image of session



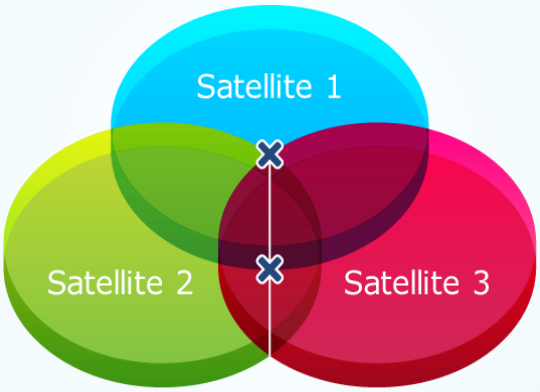
Report – Report can be typed or hand written for up to two pages.

Global Positioning System:

- **The mathematical and optical engineering principles involved in the creation of 3D photogrammetric surface images have been thoroughly described.**
- **The combination of fast acquisition speed and expanded surface coverage (up to 360 degrees) offer distinct advantages over older surface imaging modalities like laser scanning. With decreasing cost, 3D stereophotogrammetric imaging systems are becoming increasingly common in clinical and research settings.**
- **GPS, or the Global Positioning System, is a global navigation satellite system that provides location, velocity and time synchronization. GPS is everywhere. You can find GPS systems in your car, your smartphone and your watch. GPS helps you get where you are going, from point A to point B.**
- **The Global Positioning System (GPS) is a navigation system using satellites, a receiver and algorithms to synchronize location, velocity and time data for air, sea and land travel.**
- **The satellite system consists of a constellation of 24 satellites in six Earth-centered orbital planes, each with four satellites, orbiting at 13,000 miles (20,000 km) above Earth and traveling at a speed of 8,700 mph (14,000 km/h).**
- **While we only need three satellites to produce a location on earth's surface, a fourth satellite is often used to validate the information from the other three.**
- **The fourth satellite also moves us into the third dimension and allows us to calculate the altitude of a device.**
- **The three segments of GPS are:**
- **Space (Satellites) — The satellites circling the Earth, transmitting signals to users on geographical position and time of day.**
- **Ground control — The Control Segment is made up of Earth-based monitor stations, master control stations and ground antenna. Control activities include tracking and operating the satellites in space and monitoring transmissions.**
- **There are monitoring stations on almost every continent in the world, including North and South America, Africa, Europe, Asia and Australia.**
- **User equipment — GPS receivers and transmitters including items like watches, smartphones and telematic devices.**
- **GPS satellites circle the earth twice a day in a very precise orbit and transmit signal information to earth. GPS receivers take this information and use triangulation to calculate the user's exact location. Essentially, the GPS receiver compares the time a signal was transmitted by a satellite with the time it was received.**
- **The time difference tells the GPS receiver how far away the satellite is. Now, with distance measurements from a few more satellites, the receiver can determine the user's position and display it on the user's electronic map.**
- **A GPS receiver must be locked on to the signal of at least three satellites to calculate a 2D position (latitude and longitude) and track movement.**
- **With four more satellites in view, the receiver can determine the user's 3D position (latitude, longitude and altitude).**

Satellite Ranging:

Possible Positions with three GPS Satellites



Possible position of GPS receiver