3/21

0502E1453

Candidate's Seat No :_____

MSc Sem.-1 Examination

404

Geoinformatics

February-2025

Time : 2-30 Hours] **[Max. Marks : 70**

QUESTION – 1 Write the following	
(I) What is the difference between GPS and DGPS?	7
(ii) How does the ionosphere affect GNSS signals, and what are the consequences for positioning accuracy?	7
OR	
(I) Give a brief note on IRNSS	7
(ii) What is the difference between RTK and PPk	7
QUESTION – 2 Write the following	
(I) Explain the key differences between GNSS and GPS, and describe the global systems involved in GNSS	7
(ii) What are the key components of a GNSS system, and how do they work together to provide accurate location data?	7
OR	
(I) Explain the role of "ephemeris data" in GNSS positioning	7
(ii) Discuss the sources of error in GNSS and how these errors can affect accuracy	7
QUESTION – 3 Write the following	
(I) Describe how Differential GNSS (DGNSS) improves positioning accuracy.	7
(ii) Discuss the differences between the GPS system and the NAVIC system. What are the advantages and disadvantages of each	7
OR	
(I) Explain CORS network in India	7
(ii) Discuss the importance of GNSS in various industries and applications	7
QUESTION – 4 Write the following	
(I) What is "Selective Availability" (SA) in GPS, and how did its removal impact GPS accuracy	7
(ii) Explain in brief L1, L2 and L5 frequency	7
OR	
(I) Explain Relative and Absolute accuracy in detail.	7
(ii) Explain Location based services with examples	7

(P.T.O)

QUESTION – 5* Attempt any seven out of twelve.
*** MCQ /Short question (One or Two line answer)/Fill in the blanks/True or False etc.**

(14)

1. What is the primary purpose of GPS?
a) To determine global weather patterns
b) To help navigate and provide location information
c) To collect satellite imagery
d) To monitor global communications

2. What is the primary function of a GPS receiver?
a) To transmit data to GPS satellites
b) To calculate the user's speed
c) To receive signals from satellites and calculate the user's position
d) To store satellite data

3. Which of the following GNSS systems is operated by the India?
a) GLONASS
b) IRNSS
c) Galileo
d) BeiDou

4. What is the primary function of the GNSS satellite system?
a) To relay communication signals
b) To store location data
c) To provide precise timing and location information to GNSS receivers
d) To measure the Earth's magnetic field

5. How does a GPS receiver determine its position?

a) By triangulating signals from at least three satellites
b) By using a built-in compass to measure direction
c) By using only one satellite to calculate the distance
d) By calculating time based on a preset clock

6. What is the term for the process of correcting errors in GPS signals due to atmospheric conditions?

a) Georeferencing
b) Differential GPS
c) Geo-rectification
d) Geocoding

7. What does the term "trilateration" refer to in GPS?
a) The process of measuring time using GPS signals
b) The process of determining a location based on the distance from at least three satellites
c) The process of correcting GPS signal errors
d) The method used to plot GPS coordinates on a map

8. Which of the following is a limitation of GPS?
a) It works only at night
b) It requires an unobstructed view of the sky
c) It works only in urban areas
d) It requires a connection to the internet

9. How accurate is standard GPS for civilian use?
a) Up to 10 cm
b) Less than 1 meter
c) Up to 10 meters
d) Up to 1000 meters

10. Which type of error is most commonly caused by the ionosphere and the troposphere in GPS signals?
a) Clock error
b) Multipath error
c) Atmospheric error
d) Ephemeris error

11. What is the minimum number of GPS satellites that would typically need to be in orbit as a Global Navigation system?
a) 10
b) 12
c) 24
d) 30

12. What is the purpose of "multipath error" in GPS?

a) It occurs when a GPS signal is reflected off buildings or other obstacles, causing inaccurate readings
b) It refers to the time offset caused by the satellite's clock
c) It is an error caused by the ionosphere
d) It is an error due to the receiver's hardware