GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2014

Subject code: 1722704

Subject Name: Global Positioning System

Time: 02:30 pm - 05:00 pm

Total Marks: 70

Date: 23-06-2014

Instructions:

- 1. Attempt all questions.
- 2. Make suitable assumptions wherever necessary.
- 3. Figures to the right indicate full marks.
- Q.1 (a) What do you mean by GPS? Also explain Ground and Space based Radio 07 navigation system in detail.
 - (b) Properly draw and explain GPS reference system WGS84 and also describe 07 its operation in detail.
- Q.2 (a) Properly describe GPS history in detail. Also explain what scheme used 07 before GPS?
 - (b) List the types of error occurred in GPS? Also explain any three types of error 07 in detail.

OR

- (b) List all types of GPS system used in to the real environment and explain any 07 two of them in detail.
- Q.3 (a) List different types of GPS receiver used. Also give comparisons of single vs 07 dual frequency receiver.
 - (b) List different types of antenna used in GPS. Also list special quality of those 07 antennas and explain any two in detail.

OR

- Q.3 (a) List and explain different types of primary equipment and software used for 07 the GPS.
 - (b) Explain control segment locations. Also explain physical characteristics and 07 orbital parameter of GPS.
- Q.4 (a) Explain the concept of dilution of precision in brief. Also explain HDOP and 07 VDOP in short.
 - (b) What is pseudo ranges? Properly explain pseudo ranging with minimum 07 constellation of four satellites.

OR

- Q.4 (a) Properly explain the velocity determination and Doppler observable for GPS 07 system in detail.
 - (b) Give comparisons of single, double and triple differences processing of carrier 07 phase measurement.
- Q.5 (a) Properly explain the significance and effect of phase ambiguity and cycle shift 07 in detail.
 - (b) Properly explain errors occurred due to ionosphere and tropospheric effect 07 and how such error can handle.

OR

Q.5 (a) Write short notes on GPS denial and accuracy.

(b) What is anti-spoofing and select availability? Also write the significance and 07 effect of the same.

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