

**GUJARAT TECHNOLOGICAL UNIVERSITY****M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2014****Subject code: 1722704****Date: 23-06-2014****Subject Name: Global Positioning System****Time: 02:30 pm - 05:00 pm****Total Marks: 70****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 navigation system in detail. **07**
- (b) Properly draw and explain GPS reference system WGS84 and also describe its operation in detail. **07**
- Q.2** (a) Properly describe GPS history in detail. Also explain what scheme used before GPS? **07**
- (b) List the types of error occurred in GPS? Also explain any three types of error in detail. **07**
- OR**
- (b) List all types of GPS system used in to the real environment and explain any two of them in detail. **07**
- Q.3** (a) List different types of GPS receiver used. Also give comparisons of single vs dual frequency receiver. **07**
- (b) List different types of antenna used in GPS. Also list special quality of those antennas and explain any two in detail. **07**
- OR**
- Q.3** (a) List and explain different types of primary equipment and software used for the GPS. **07**
- (b) Explain control segment locations. Also explain physical characteristics and orbital parameter of GPS. **07**
- Q.4** (a) Explain the concept of dilution of precision in brief. Also explain HDOP and VDOP in short. **07**
- (b) What is pseudo ranges? Properly explain pseudo ranging with minimum constellation of four satellites. **07**
- OR**
- Q.4** (a) Properly explain the velocity determination and Doppler observable for GPS system in detail. **07**
- (b) Give comparisons of single, double and triple differences processing of carrier phase measurement. **07**
- Q.5** (a) Properly explain the significance and effect of phase ambiguity and cycle shift in detail. **07**
- (b) Properly explain errors occurred due to ionosphere and tropospheric effect and how such error can handle. **07**
- OR**
- Q.5** (a) Write short notes on GPS denial and accuracy. **07**
- (b) What is anti-spoofing and select availability? Also write the significance and effect of the same. **07**

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