

**R16**

**Code No: 138CG**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B. Tech IV Year II Semester Examinations, September - 2020**

**GLOBAL POSITIONING SYSTEM**

**(Electronics and Communication Engineering)**

**Time: 2 Hours**

**Max. Marks: 75**

**Answer any Five Questions  
All Questions Carry Equal Marks**

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1. Draw the functional block diagram of the Master Control Station. Also explain the functions of each block. [15]
- 2.a) Explain the trilateration method to estimate GPS receiver position in 3D.  
b) Compare GPS and GALILEO system with respect to satellite constellation and signal structure. [8+7]
- 3.a) Explain the characteristics of C/A code.  
b) Derive the equation for ionospheric delay for phase range measurement starting from the refractive index. [5+10]
4. Draw the schematic functional block diagram of the GPS receiver. List the signal processing functions of the GPS receiver. [15]
5. Explain the following errors in GPS receivers:  
a) Ionospheric errors    b) Tropospheric errors    c) SA errors. [15]
- 6.a) With the help of a neat diagram explain Wide Area DGPS.  
b) Compare GEO uplink and down link systems. [10+5]
- 7.a) How the GEO orbit can be determined by geometric analysis.  
b) Explain the RINEX format of observation and navigation data files. [8+7]
8. Describe the steps involved in receiver position estimation using Least Squares Approximation method. [15]

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