B.E. Electronics & Communication / Telecommunication Engineering Eighth Semester

EC804 - Satellite Communication

P. Pages : 2 **GUG/W/18/2030**

Time : Three Hours * 1 5 5 8 * Max. Marks : 80

Notes : 1. Same answer book must be used for all questions.
2. All questions carry marks as indicated.
3. Due credit will be given to neatness and adequate dimensions.
4. Assume suitable data wherever necessary.
5. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) State and explain Kepler's law's of planetary motion with suitable expressions. **12**

b) Define **4**

i) Apogee ii) Perigee

iii) Prograde orbit iv) Retrograde orbit

OR

2. a) What do you mean by LEO, MEO and GEO, explain. **6**

b) What do you understand by satellite subsystems explain the various subsystems in satellite communication. **10**

3. a) Explain with suitable block diagram the telemetry tracking and command system. **8**

b) Derive the expression for Noise temperature. **8**

OR

4. a) Why C/N instead of S/N ratio is considered in satellite communication. Derive the expression for C/N ratio.
Also explain why C/N ratio is directly dependent on G/T ratio. **10**

b) Derive the expression for calculation of the geostationary orbit radius. **6**

5. a) What is transponder? Discuss 14/11 double conversion transponder. **8**

b) Derive the expression for received power Pr for satellite communication. **8**

OR

6. a) What do you mean by uplink and downlink. Discuss complete downlink design and explain under what condition a complete satellite link becomes downlink. **10**

b) Discuss Digital video Broadcast. **6**

7. a) Discuss antenna system in satellite communication what are various antenna's used in satellite communication. **8**

b) Write a note on measurement of G/T ratio, C/NO ratio and EIRP in satellite communication. **8**

OR

8. a) Explain with suitable block diagram the GPS system. **8**

b) Describe GPS receiver operation. **8**

9. a) What are C/A coder used in GPS system write a note on it. **8**

b) What is the signal acquisition procedure in satellite GPS system. **8**

OR

10. a) Write a note on – **16**

i) TDMA

ii) Spread spectrum Technology.

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