



## Satellite Communication (New) (1300)

P. Pages : 2

Time : Three Hours

Max. Marks : 100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answer sheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Attempt **any two** sub - questions from each unit.
5. Use of logarithmic table, drawing instruments a non programmable calculator is permitted.
6. Figures to the right indicate full marks.
7. Assume suitable data wherever necessary a state the assumptions made.

### UNIT - I

1. a) Explain how a satellite is located with respect to earth. **10**  
b) Explain elevation angle and azimuth angle calculation with proper derivations. **10**  
c) Explain various types of orbital perturbations affecting the system performance. **10**

### UNIT - II

2. a) Explain various types of atmospheric losses what is cross polarization. **10**  
b) Explain how depolarization is caused by ionosphere rain & ice. **10**  
c) Explain in brief the antenna configurations used for satellite communication system. **10**

### UNIT - III

3. a) Discuss the various design issues related with uplink design & give the expression C/N ratio for the same. **10**

- b) What are the factors considered for uplink and downlink design. 10  
What is the significance of F. M. improvement factor.
- c) Compare FDMA, TDMA and CDMA. 10

**UNIT - IV**

4. a) Explain attitude & orbital control system with proper block diagram. 10
- b) Explain TT and C subsystem of satellite. 10
- c) Explain the general configuration of an earth station (ES) 10

**UNIT - V**

5. a) Compare LEO, MEO and GEO. 10
- b) Explain Direct Broadcast Satellite System. 10
- c) Describe Very Small Aperture Terminal in detail. 10

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