

Roll No.

24441

**B. Tech. 7th Semester (ECE)
Examination – December, 2014**

SATELLITE COMMUNICATION

Paper : ECE-403-F

Time : Three hours]

[Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Question No. 1 is *compulsory* and attempt *one* question from each of the *four* Sections. All questions carry equal marks.

1. (a) Why uplink frequency is always higher than uplink frequency ? 4
- (b) What is difference between LEO and GEO ? 4
- (c) What do you mean by rain fall attenuation ? 4
- (d) State Kepler's third law. 4
- (e) Define apogee and perigee 4

5. (a) What is time division multiplexing ? How does it differ from frequency division multiplexing ? Write down its merits and demerits. 10
- (b) What are the various types of digital modulation techniques ? List some of them with relative merits and demerits. 10

SECTION – C

6. (a) What is Burst ? Explain the difference between the reference burst and traffic burst. Explain their positions in a TDMA frame. 10
- (b) What is satellite switching ? What is the difference between SS-TDMA and beam hopping TDMA ? 10
7. (a) What is meant by look angles ? What do you mean by azimuthal angle and elevation angle ? 10
- (b) Explain about Earth eclipse of satellite and sun transit outage ? 10

SECTION – D

8. (a) Describe the operation of typical VSAT system. State briefly where VSAT systems and find widest applications. 10

SECTION - A

2. (a) What are the elements of satellite communication system ? Explain each with a suitable block diagram. 10
- (b) What is difference between geostationary and low altitude satellite. Can a low altitude satellite be used for communication and why ? 10
3. (a) The range between a ground station and a satellite is 42000 km. Calculate the free space loss at frequency of 6 GHz. 10
- (b) What is system noise temperature ? How does it affect the C/N and G/T ratio ? 10

SECTION - B

4. (a) Explain in detail the operation of a pre-assigned SCPC network. 10
- (b) What are inter modulation products and their effects in FM/FDM systems ? 10

- (b) Write short note on SARSAT (Search and Rescue satellite) 10
9. (a) Explain the basic difference between the optical satellite communication link and RF satellite communication link. Mention their relative merit and demerits. 10
- (b) Compare various types of laser sources being used in laser communication systems. 10
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