

**I.D. No. 24441**

**B. Tech. 7th Semester F. Scheme Electronics & Communication**

**Engg.-III Examination, May-2014**

**SATELLITE COMMUNICATION**

**Paper-ECE-403-F**

*Time allowed : 3 hours] [Maximum marks : 100*

*Note : Attempt five questions in total. All questions carry equal marks. Question Number 1 is compulsory. Attempt one question from each unit.*

1. (a) Explain working of CODEC.
- (b) What do you mean by station keeping ?
- (c) Explain synchronous orbit
- (d) What do you mean by slant range.
- (e) Difference between VSAT and MSAT. 4×5

**Unit-I**

2. (a) What is the difference between geostationary satellite and low altitude satellite? Can a low altitude satellite can be used for communication purpose ? Justify your answer. 10
- (b) Enumerate advantages of satellite communication. How satellite communication has an edge over optical fibre communication system ? 10

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**[P.T.O.]**

3. Derive general link equations. Also find out expression for C/N and G/T ratios. Explain importance of these ratios on satellite link design. 20

**Unit-II**

4. (a) Explain analog tv transmission through satellite. Write the expressions for S/N ratio calculation for satellite tv links. 10
- (b) Compare the performance of fm/fdm SCPC and CSSB systems. 10
5. (a) Why TDM is the only option for digital satellite link. Also explain as to why intermodulation effects are not prevalent in TDM. 10
- (b) What is meant by error rate ? What is the optimum acceptable value for digital satellite communication ? 10

**Unit-III**

6. (a) What is guard time ? Give its numerical value for TDMA system and also explain its importance in TDMA frame efficiency. 10
- (b) What is CDMA ? How it is superior to TDMA? 10

7. (a) What are the orbital parameter required to determine a satellite's orbit ? 10  
(b) Explain how the solar eclipse affects the working of communication satellite. 10

**Unit-IV**

8. (a) Explain basic difference between the optical satellite communication and RF satellite communication link. Also give out advantages and disadvantages of each. 10  
(b) Explain optical satellite cross link. How do different noises affect the working of satellite link. 10

9. Write short note on :

- (a) INTELSAT  
(b) LEO's  
(c) MSAT. 7,7,6