

**328714(28)**

APR-MAY

**B. E. (Seventh Semester) Examination, 2020**

**(Old Scheme)**

**(Et & T Engg. Branch)**

**SATELLITE COMMUNICATION**

***Time Allowed : Three hours***

***Maximum Marks : 80***

***Minimum Pass Marks : 28***

***Note : Part (a) of each unit is compulsory. Attempt any two parts from (b), (c) and (d) from each unit.***

**Unit-I**

1. (a) What is synchronous orbit? 2
- (b) What are the difference between active and passive satellite system? Discuss their merit and demerits. 7

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- (c) Explain general & technical characteristics (structure) of Satellite Communication System. 7
- (d) Explain the earth coverage and slant range of satellite communication system. 7

**Unit-II**

- 2. (a) What is system noise temperature? 2
- (b) Derive the general link design equation. Find out an expression for C/N and G/T ratios. 7
- (c) Explain the concept of Noise temperature related to satellite link design. 7
- (d) A satellite at a distance of 36000 km from the surface of the earth radiated a power of 4 watt from an antenna of gain 15 DB. Find the this density and power received by an antenna of effective area 12 m<sup>2</sup> & the receiving antenna of has a gain of 50 dB then also calculate the receiving power. 7

**Unit-III**

- 3. (a) TDMA and CDMA stands for what? 2

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- (b) Explain the TDMA super frame structure and explain how it differs from a simple TDMA figure? 7
- (c) Explain the CDMA system of satellite communication system. 7
- (d) Define TDMA and FDMA and write the difference between them. 7

**Unit-IV**

- 4. (a) What is thermal sub system? (in short) 2
- (b) What is the telemetry, tracking and command (TTC) sub system? 7
- (c) Explain the reliability of satellite system. 7
- (d) What is structure sub system? What kind of operation does it perform? Which material are preferred for the design of sub-system? 7

**Unit-V**

- 5. (a) Define frequency co-ordination. 2
- (b) Explain monitoring and control regarding satellite earth station. Why is it necessary to have these? 7

- (c) Explain with block diagram the working of receives part of earth station. 7
- (d) Explain about mobile and transport earth station. 7