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Total Number of Pages : 1

M.TECH

M.TECH 2ND SEMESTER (AR 18) REGULAR EXAMINATIONS, APRIL/MAY 2019

SATELITE COMMUNICATION

Branch: ECE, Subject Code:MECPE2031

Time: 3 Hours

Max Marks : 70

PART-A**(10 X 2=20 MARKS)****1. Answer the following questions.**

- Explain what the terms centrifugal and centripetal mean with regard to a satellite in orbit around the earth.
- Differentiate between Geostationary and Geosynchronous satellite.
- What is the need of attitude and orbit control systems in satellite communication systems?
- How (G/T) ratio can be expressed in terms of (C/N) ratio?
- What is Doppler shift?
- Why uplink frequency is greater than downlink frequency?
- What do you mean by sun transit outage?
- What is sub satellite point?
- What is the significance of EIRP in satellite communication?
- Why pre-emphasis and de-emphasis are used in FM transmission?

PART-B**(5 X 10=50 MARKS)****Answer any five questions from the following.**

- Explain Kepler's three laws of planetary motion. [5]
 - A GEO satellite carries a transponder with 20 W transmitters at 4 GHz. The transmitter is operated at an O/P power of 10 W and drives an antenna with a gain of 30 dB. An earth station is the center of the coverage zone of the satellite, at range of 38500 km. Find (i) the flux density at the earth station, (ii) the power received by an antenna with a gain of 39 dB, (ii) the EIRP of the transponder. [5]
- Describe in detail typical features of DBS systems. [5]
 - Explain how satellite communication system implements TDMA? [5]
- Write down the design procedure for a one-way satellite communication. [5]
 - Explain TTC&M System with neat block diagram. [5]
- What do you mean by G/T ratio in satellite communication system? Discuss its importance in an earth station. [5]
 - Briefly discusses various types of antenna used in satellites. [5]
- Enlist various types of launch vehicles. Why these launch vehicles are required for satellites? [5]
 - Discuss the propagation effects that are not associated with the hydrometeors. [5]
- Explain the demand assigned FDMA scheme with the help of SPADE. [5]
 - Discuss the propagation effects that are not associated with the hydrometeors. [5]
- Write short answer on :
 - AOCS [5]
 - Uplink and Downlink Design [5]