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**Question Paper Code: 39417**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Seventh Semester

Electronics and Communication Engineering

01UEC917 - SATELLITE COMMUNICATION PRINCIPLES AND APPLICATIONS

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. State Kepler's second law.
2. Define apogee and perigee.
3. List the elements in a transponder.
4. What is meant by frequency reuse?
5. List the advantages of TDMA over FDMA.
6. Distinguish preassigned and demand assigned traffic.
7. Write the features of CATV.
8. The range between a ground station and a satellite is 42000 km. Calculate the free space loss for a frequency of 6 GHz.
9. Name the 3 regions to allocate the frequency for satellite services.
10. Point out the satellite mobile services.

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Determine the angle of tilt required for a polar mount used with an earth station at latitude 38 *degrees* north. Given, radius of earth is 6371 *km*. (8)
- (ii) Illustrate the limits of visibility for a geostationary orbit. (8)

Or

- (b) (i) Explain the significance of station keeping. (10)
- (ii) Illustrate the limits of visibility and sun transit outage. (6)
12. (a) (i) Briefly describe the three-axis method of satellite stabilization. (6)
- (ii) Describe the various modes of interference that can occur in a satellite communication system. (10)

Or

- (b) Draw the neat sketch and explain the Input Demultiplexer. (16)
13. (a) Illustrate the features of various multiple access schemes deployed for satellite access and compare it. (16)

Or

- (b) Draw the block diagram of spread spectrum communication system and explain. (16)
14. (a) (i) Draw and explain the block diagram of a transmit-receive earth station. (8)
- (ii) Discuss on the design requirements of small earth station antennas. (8)

Or

- (b) Explain the EIRP and Transmission losses. (16)
15. (a) (i) Explain the role of MPEG compression standards in DBS system. (8)
- (ii) Describe the features of an INMARSAT satellite system. (8)

Or

- (b) Describe the operation of direct to home broadcast system and also mention the advantages of DTH. (16)



