Reg. No. : | | | | | | | | | | |

Question Paper Code: 31477

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

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. Define look angle.
2. What are the conditions required for an orbit to be geostationary?
3. Write short notes on attitude control system.
4. State pitch angle.
5. A satellite downlink at 12 *GHz* operates with a transmit power of 6 *W* and an antenna gain of 48.2 *dB*. Calculate the EIRP in dBW.
6. Summarize the important feature of intelsat SCPC system.
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) State Kepler's three laws of planetary. Explain their relevance to artificial satellites orbiting the earth. (10)

(ii) Discuss about various satellite orbits. (6)

Or

(b) (i) Explain the significance of station keeping. (10)

(ii) Illuminate the limits of visibility and sun transit outage. (6)

12. (a) Analyze the concepts of telemetry, tracking and command in satellite system with a diagram. (16)

Or

(b) (i) Explain about uplink and downlink satellite model. (10)

(ii) State the different types of noise to be considered in the design of satellite communication system. (6)

13. (a) Explain the different multiple access techniques used in satellite communication with special features. (16)

Or

(b) Draw the block diagram of spread spectrum communication system and explain. (16)

14. (a) Explain in detail about of the master antenna TV system with neat diagram. (16)

Or

(b) Explain in detail about transmit and receive earth stations. (16)

15. (a) (i) Describe about VSAT system. (6)

(ii) Briefly discuss the working of GPS. (10)

Or

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

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