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Question Paper Code: 59041

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Elective

Electronics and Communication Engineering

15UEC916 - SATELLITE COMMUNICATION PRINCIPLES AND APPLICATIONS

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

- MEO satellites are placed _____ km above the surface of earth.
(a) around 1500 (b) around 10000 (c) around 24000 (d) around 36000
- Which noise is related to the microwave radiation?
(a) Amplifier Noise (b) Feeder noise
(c) Sky noise (d) Shot Noise
- In pre-assigned TDMA, each burst contains
(a) 64 bits (b) 128 bits (c) 256 bits (d) 32 bits
- Which system is used to provide reception of DBS TV/FM channels to a small group of users?
(a) CATV system (b) TVRO system (c) HDTV system (d) MATV system
- Which band is used in DTH system?
(a) Ku (b) C (c) Ka (d) X

PART - B (5 x 3 = 15 Marks)

- State Kepler's second and third law.
- Define input back off.
- Define guard time.

9. What is meant by transponder?
10. What are the applications of Radarsat?

PART - C (5 x 16 = 80 Marks)

11. (a) What are look angles? With neat diagrams, explain how elevation and azimuth angles are determined. (16)

Or

- (b) (i) Discuss the steps involved in launching satellite. (8)

- (ii) Write brief notes on limits of visibility and sun transit outage. (8)

12. (a) Derive the satellite uplink and downlink (C/N_0) equations. (16)

Or

- (b) (i) Explain how inter-modulation noise originates in a satellite link and describe how it is reduced. (8)

- (ii) Derive the link-power budget equation. (8)

13. (a) (i) Explain in detail about pre-assigned FDMA with neat diagrams. (8)

- (ii) Explain satellite switched TDMA. (8)

Or

- (b) (i) Explain Direct sequence spread spectrum communication in detail. (8)

- (ii) Write a brief note on acquisition and tracking in CDMA. (8)

14. (a) Give a detailed note on: (i) TVRO (ii) MATV (iii) CATV. (16)

Or

- (b) With neat diagrams, explain the attitude control and orbit control subsystem. (16)

15. (a) (i) Explain VSATs in detail. (8)

- (ii) Write a brief note on Global Positioning Satellite system. (8)

Or

- (b) (i) Explain how DTH operation is carried out with a neat diagram. (8)

- (ii) Explain in detail about Business Television(BTV). (8)