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Question Paper Code: 59416

B.E./B.Tech. DEGREE EXAMINATION, APRIL 2019

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)

- _____ is a satellite that rotates around the earth in a low altitude elliptical or circular pattern CO1- R
(a) Geo synchronous satellite (b) Non synchronous satellite
(c) Prograde satellite (d) Retrograde satellite
- Why are techniques like frequency reuse and spatial isolation carried out? CO2- R
(a) Reduce traffic load (b) More gain (c) High speed (d) Error detection
- Cable TV is an example of CO3- R
(a) TDMA (b) FDMA (c) CDMA (d) SDMA
- Wide beams for global coverage are produced by simple horn antenna at CO4- R
(a) 4/6 GHz (b) 2/4 GHz (c) 4/2GHz (d) 6/4GHz
- Big LEOs operate between CO5- R
(a) 1to 2GHz (b) 1 to 5GHz (c) 1 to 3GHz (d) 1 to 7GHz

PART – B (5 x 3= 15 Marks)

- Write about the right ascension of ascending node. CO1- R
- How is spinning satellite stabilization achieved? CO2- R

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|-----|--|--------|
| 8. | Draw the block schematic of voice and data MUX/DEMUX. | CO3- R |
| 9. | What are the functions required to perform in an earth stations tracking system? | CO4- R |
| 10. | Write about INSAT system. | CO5- R |

PART – C (5 x 16= 80Marks)

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| 11. | (a) Write notes on | CO1- U | (8) |
| | (i) Orbital perturbations | | |
| | (ii) Station keeping. | CO1- U | (8) |
| | Or | | |
| | (b) Write about | CO1- U | (8) |
| | (i) Sub satellite point | | |
| | (ii) Sub transit outage | CO1- U | (8) |
| 12. | (a) Explain about the propagation characteristics and frequency considerations in satellite link design. | CO2-U | (16) |
| | Or | | |
| | (b) Describe satellite uplink of downlink analysis and design. | CO2-U | (16) |
| 13. | (a) Explain about Digital and Analog Transmitter and Receiver used in a satellite system. | CO3-U | (16) |
| | Or | | |
| | (b) Explain multiple access techniques- CDMA, TDMA in detail. | CO3-U | (16) |
| 14. | (a) Describe about CATV system. | CO4- U | (16) |
| | Or | | |
| | (b) With neat sketches explain space craft technology structure and its working. | CO4- U | (16) |
| 15. | (a) With neat diagrams explain INMARSAT satellite service. | CO5- U | (16) |
| | Or | | |
| | (b) Explain mobile satellite service in detail. | CO5- U | (16) |