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Reg. No. :

M.E. DEGREE EXAMINATION, MAY 2018

Second Semester

Communication Systems

15PCM201 - SATELLITE COMMUNICATION

(Regulation 2015)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1. (a) What are the orbital mechanics used in satellite communication and   CO1- U   (20)
         explain any one   of the orbital mechanics and compare with others.

                                    Or

    (b) With necessary diagrams explain about transponders in   CO1- U   (20)
         communication satellite and state Newton law of motion.

2. (a) Explain the principle of CDMA in satellite system. Discuss its   CO2- U   (20)
         merits and demerits. How does it differ from TDMA and FDMA.

                                    Or

    (b) Explain the CDMA scheme of satellite access. Compare its merit   CO2- U   (20)
         with other schemes.

3. (a) Calculate the rain attenuation if an earth station is at a latitude of   CO3-App   (20)
         350 and the transmission take place on carrier of 6.21GHz. The line
         has to be designed for a failure not exceeding 0.01% of the time at a
         rain rate of 15mm per hour. The elevation of earth station antenna is
         35%.

                                    Or

    (b) A satellite at a distance of 40,000 Km from a point on earth's   CO3-App   (20)
         surface radiates a power of 2W from an antenna, with a gain of 17
         dB in the direction of a observer. Find the power received by an
         antenna with an effective area of $10m^2$.

4. (a) Explain the role played by GPS in various Satellite Services. Give necessary Figures.   CO4- U   (20)

<div align="center">Or</div>

   (b) Briefly explain the basic concept of GPS Receiver with a neat diagram.   CO4- U   (20)

5. (a) Present the concept, implementation, working and applications of VSAT systems.   CO5-Ana   (20)

<div align="center">Or</div>

   (b) What are the configurations of various Intelsat systems? Describe in detail about the brief operational characteristics of Intelsat systems.   CO5- U   (20)

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