Reg. No. :

Question Paper Code: 59416

B.E./B.Tech. DEGREE EXAMINATION, DEC 2020

Elective

Electronics and Communication Engineering

15UEC916-SATELLITE COMMUNICATION PRINCIPLES AND APPLICATIONS

(Regulation 2015)

Duration: One hour   Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. The first geostationary satellite launched in 1965 was called   CO1- R

    (a) ANIK   (b) EARLY BIRD (Intelsat-I)   (c) WESTAR   (d) MOLNIYA

2. A helical antenna is used for satellite tracking because of its   CO1- R

    (a) circular polarization   (b) maneuverability   (c) beam width   (d) gain

3. The down link frequency in the Ku band transponder is   CO2- R

    (a) 10-12 GHz   (b) 14 -16GHz   (c) 14 -20GHz   (d) 10-16 GHz

4. In a communication satellite, the equipment which provides the   CO2- R
    connecting link between the satellite's transmit & receive antennas

    (a) Repeater   (b) Transponder   (c) Transmitter   (d) None of the above

5. The access scheme used by GPS   CO3- R

    (a) FDMA   (b) OFDMA   (c) CDMA   (d) TDMA

6. The modulation technique used in INTELSAT SCPC scheme is   CO3- R

    (a) PSK   (b) QPSK   (c) FSK   (d) BPSK

7. In which TV separate LNA/Cs and feeder are required for each sense of   CO4- R
    polarization

    (a) CATV   (b) MATV   (c) TVRO   (d) None of the above

8. The three axes referred to the three-axis attitude stabilization are,   CO4- R
   except

   (a) Pitch   (b)Yaw   (c)Roll   (d)Speed

9. What band does VSAT first operate?   CO5- R

   (a) X-band   (b) C-band   (c) Ku-band   (d) L-band

10. The GPS satellites have an angle of elevation at the ascending node   CO5- R
    of ____ with respect to the equatorial plane.

    (a) 30 degrees   (b) 55 degrees   (c) 50 degrees   (d) 45 degrees

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. State Kepler's three laws of planetary motion. Illustrate in each case   CO1- U   (8)
    their relevance to artificial satellites orbiting the Earth.

12. Explain in detail about EIRP and satellite downlink analysis   CO2-U   (8)

13. What type of multiple access technique is used in which a number of   CO3-U   (8)
    users can occupy all of the transponder bandwidth all the time. Explain
    in detail about that access.

14. In detail illustrate the Attitude and Orbit control & Telemetry,   CO4- U   (8)
    Tracking and Command sub system.

15. Describe the specialized services offered by satellites for video   CO5- U   (8)
    conferencing e-mail and internet

59416