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Question Paper Code: 59416A

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. Rotation of a geosynchronous satellite means its CO1- R
(a) Drift from stationary position (b) Wobbling
(c) Three-axis stabilization (d) Three-dimensional stabilization
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 INTELSAT-IV satellite launched in 1974 had two earth coverage antenna and two narrower-angle antennas subtending 4.5° . The signal from narrow-angle antenna was stronger than that from earth-coverage antenna by a factor of CO5- R
 (a) $17.34/4.5$ (b) 17.34×4.5 (c) $(17.34/4.5)^2$ (d) $(17.34/4.5)^4$

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Estimate the suitable equations for look angles and the range CO1- U (8)
 for geo stationary satellite.
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 briefly the types of INTELSAT satellites with respect to CO5- U (8)
 basic space craft characteristics and vehicle types.