Code No: **R1642043**   **R16**   Set No. 1

IV B.Tech II Semester Advanced Supplementary Examinations, Aug/Sep - 2022
SATELLITE COMMUNICATIONS
(Electronics and Communication Engineering)

Time: 3 hours   Max. Marks: 70

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
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PART–A *(14 Marks)*

1. a) List out the laws that describes the satellite motion.   [3]
    b) Write the features of 3-axis stabilized satellites.   [2]
    c) What is C/N ratio of a satellite link.   [2]
    d) What is spreading and dispreading in CDMA.   [3]
    e) List out the various earth station subsystems.   [2]
    f) Write the applications of GPS.   [2]

PART–B *(4x14 = 56 Marks)*

2. a) What are look angles? Describe with relevant mathematical expressions.   [7]
    b) Explain the principle of launching and various satellite launch vehicles.   [7]

3. a) Explain the functions of Telemetry, Tracking, Command and monitoring system   [7]
       with a neat block diagram.
    b) Write short notes on Satellite antennas.   [7]

4. a) What is the link equation? Derive the expression for it.   [7]
    b) Explain briefly about uplink satellite circuits.   [7]

5. a) What is intermodulation? How it effects the calculation of C/N in FDMA   [7]
       systems? Explain.
    b) Draw and explain the frame structure of TDMA.   [7]

6. a) Explain the basic architecture of earth station with a neat diagram.   [7]
    b) What are the various operational NGSO constellation designs? Explain any one.   [7]

7. a) Describe the features of various GNSS systems.   [7]
    b) Explain the GPS receiver operation with a neat diagram.   [7]

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