



R18 Regulation

Subject code: 2E8DD

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech VIII Semester Regular Examinations, June 2022

SATELLITE COMMUNICATIONS

(ELECTRONICS AND COMMUNICATION ENGINEERING)

Maximum Marks: 70

Date: 18.06.2022 Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10x2M=20 Marks)

- 1 What are the various satellite services allocated depending on frequency bands?
- 2 List the applications of satellite communication.
- 3 What are the power sources for satellites?
- 4 What are the major subsystems required on the satellite?
- 5 What is meant by DAMA?
- 6 Define Link budget.
- 7 What is the use of earth station in satellite communication?
- 8 What is meant by figure of merit of an earth station?
- 9 What is NGSO constellation?
- 10 What is differential GPS?

Part-B

Answer All the following questions. (5X10M=50Marks)

- 11 Categorize the frequency allocations and draw the frequency spectrum for satellite services. (10)
OR
- 12 Examine the orbital perturbations in detail. (10)
- 13 Write a short note on telemetry, command and monitoring system of satellite. (10)
OR
- 14 Write a short note on reliability of satellite subsystem. Derive the expression for reliability of a device. (10)
- 15 Explain the multiple accesses and compare the performance characteristics of FDMA, TDMA and CDMA. Also give their typical applications. (10)
OR
- 16 Derive the general link equation. Find out the expression for C/N and G/T ratios and explain the importance of these ratios in satellite link design. (10)
- 17 Explain earth station transmitter, receiver and antenna in detail. (10)
OR
- 18 Explain the Earth Station Tracking System briefly. (10)
- 19 Explain any four Non-geostationary constellation designs. (10)
OR
- 20 Explain the GPS receiver operations and explain the code lock loop and navigation. (10)
Message recovery.