R18 Regulation *Subject code: 2E8DD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VIII Semester Regular/Supplementary Examinations, April 2023

Satellite Communications

(Electronics and Communication Engineering)

Maximum Marks: 70 Date:05.05.2023 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 Define Geo-stationary orbit.
2 Write the Orbital Effects in Communication Systems Performance.
3 List satellite antennas.
4 What is meant by Communication Subsystems?
5 Mention Satellite System Design Examples
6 Define Intermodulation.
7 Define Earth Station.
8 Mention few Primary Power Test Methods.
9 What are the features of GPS?
10 List out the advantages and disadvantages in positioning satellite in lower orbit .

Part-B

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

11 A. Explain various reasons for orbital perturbation which effects the satellite communication.
B. Clearly explain the advantages of Satellite Communications. [5+5]

OR

12 A. Write about Frequency Allocations for Satellite Services.
B. Discuss about orbit determination. [5+5]

13 A. Explain about Attitude and Orbit Control System in detail.
B. Explain about 6/4 GHz Communication Subsystem in detail with neat schematics. [5+5]

OR

14 A. Discuss about Telemetry and Tracking.
B. Write about Power Systems of Satellite Subsystems. [5+5]

15 A. Give in detail about the comparisons of multiple access techniques?
B. Discuss the uplink design. [5+5]

OR

16 A. Explain system noise temperature and G/T ratio in detail.
B. Explain TDMA and its frame structure with neat diagrams. [5+5]

17 Draw the transmitter and receiver block diagrams of an earth station and explain its Working. [10]

OR

18 A. Write about Tracking Systems of an earth station.
B. Explain different power test methods. [5+5]

19 Explain about Non-Geo stationary orbit (NGSO) constellation. [10]

OR

20 Discuss Coverage and Frequency Consideration of low Earth Orbit and Geo-Stationary Satellite Systems. [10]