QP Code: RO20MTECH225 Reg. No | | | | | | | | | | | AR 19

GIET UNIVERSITY, GUNUPUR – 765022

M. Tech (Second Semester Examinations) – October' 2021

MPEEC2031 – SATELLITE COMMUNICATION

(E.C.E)

Time: 2 hrs Maximum: 50 Marks

(The figures in the right hand margin indicate marks)

PART – A

Q.1. Answer ***ALL*** questions (2 x 10 = 20)

a. Why uplink frequency is greater than downlink frequency?

b. Differentiate between natural and artificial satellite with suitable examples.

c. How does the satellite transponder help in satellite communication?

d. What are the multiple access techniques in satellite?

e. Define the telemetry and tracking in satellite communication.

f. How the AOCS helps to control the attitude and orbit of the satellite?

g. Why FM is preferred for satellite communication?

h. What is the role of a Compander?

i. What are the link budget parameters for satellite?

j. Define satellite switched TDMA?

PART – B **(6 x 5 = 30 Marks)**

Answer ***ANY FIVE*** questions Marks

2. What do you mean by frequency band? What are the frequency bands used in satellite communication? Write their applications. (6)

3. What are the different types of satellite orbits and explain them with neat diagram? (6)

4. Explain apogee and perigee for an elliptical orbit with appropriate sketches. (6)

5. Explain about the TTC&M with suitable diagram. (6)

6. Describe the architecture and roles of the subsystems. (6)

7. A geostationary satellite is orbiting at 42, 000 km. If the radius of orbit of earth is 6385 km and the sun's declination is 7 degrees, 15', calculate the duration of the eclipse. Also calculate the starting time of the eclipse if the satellite longitude is 83 degrees East. (6)

8. Explain the principle behind Spectrum spreading and de-spreading and how this is used to minimize interference in CDMA system. (6)

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