I. The total radius of the satellite's orbit.

II. The orbital velocity of the satellite.

III. The time period of revolution of the satellite. 2+3+5=10

5. Briefly explain the different effects of Eclipse on Satellite. Discuss the process of remedies and mitigations. 6+4=10

6. Write short notes of

i) Sun Outage

ii) C/N ratio 5+5=10

7. Discuss the Attitude and Orbit Control System and mention its importance. 8+2=10

8 Discuss Amplitude Shift Keying with necessary diagrams and mention its advantages and disadvantages. 7+3=10

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B.Tech Even Semester Examination, May, 2025

Electronics & Communication Engineering

(8th Semester)

Course No: ECC-802B

(Satellite Communication)

Full Marks: 50

Pass Marks: 25

Time: 2 hours

Note:

1. Attempt any five questions.
2. Begin each answer in a new page
3. Answer parts of a question at a place
4. Assume reasonable data wherever required
5. The figure in the right margin indicates full marks for the question
6. All the mathematical symbols and abbreviations have their usual meanings.

1. Mention and explain the different types of satellites. Discuss the importance of satellite communication. 6+4=10

2. Write short notes on

i) Satellite constellation

ii) NASA 5+5=10

3. Explain the trajectory of Satellite with necessary diagram(s). Define Apogee and perigee. 7+3=10

4. A satellite is orbiting Earth at a height of 3000 km above the surface. Given that the radius of the Earth is 6400 km, the mass of the Earth is approximately 6 x 10^24 kg, and the gravitational constant G is approximately 6.67 x 10^{-11} N m ^{2}/ kg ^{2}, calculate: