

M.Tech. Electronics & Communication Engineering (CBCS Pattern) Semester-III
PECS321 - Advanced Satellite Communication

P. Pages : 1

Time : Three Hours



GUG/W/24/11077

Max. Marks : 70

-
- Notes :
1. All questions carry marks as indicated marks.
 2. Assume suitable data wherever necessary.
 3. Illustrate your answers wherever necessary with the help of neat sketches.
 4. Solve **any five** questions.

- | | | | |
|----|----|--|----|
| 1. | a) | List and discuss the various orbits for satellite communication. | 7 |
| | b) | A satellite is in an elliptical orbit with a perigee of 1000km and an apogee of 4000km using a mean earth radius of 6378.14km find the period of orbit in hours, minutes and second and eccentricity of the orbit. | 7 |
| 2. | a) | What are the basic antenna system used in a satellite communication? | 7 |
| | b) | Discuss about the orbital perturbation. | 7 |
| 3. | a) | What are look angle? Explain how they are determine for geostationary orbit. | 7 |
| | b) | Discuss about launching satellite orbits. | 7 |
| 4. | a) | Explain about Geostationary orbit and near Geosynchronous orbit. | 7 |
| | b) | Explain how satellite position are estimated using sub satellite points. | 7 |
| 5. | a) | Explain the significance of station keeping. | 7 |
| | b) | Explain design of downlink for satellite communication system. | 7 |
| 6. | a) | Explain C/A code generator. | 7 |
| | b) | Explain the impact of rain on satellite. How can rain attenuation be predicted? | 7 |
| 7. | a) | What are digital modulation techniques. Explain QPSK in details? | 7 |
| | b) | Explain coherent and non-coherent detection. | 7 |
| 8. | | Write short notes on any two . | 14 |
| | a) | Differential GPS and VSAT system. | |
| | b) | Elevation angle and azimuth angle. | |
| | c) | Satellite signal acquisition. | |
