

M.Tech. Electronics & Communication Engineering CBCS Pattern Semester-III  
**PECS321 - Advanced Satellite Communications**

P. Pages : 1

Time : Three Hours



**GUG/W/23/11077**

Max. Marks : 70

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

1. a) What are the basic antenna system used in satellite communication? Explain in detail. 7  
b) List and discuss the various orbits for satellite communication system. 7
2. a) Explain different types of noise and their significance in the design of a satellite link. 7  
b) What is orbit? Derive an expression for the equation of satellite orbit. 7
3. a) A satellite is in 322km high circular orbit. Determine. 7  
i) Orbit period in minutes.  
ii) Orbital angular velocity.  
iii) Orbital velocity in M/S.  
b) Explain telemetry and tracking system. 7
4. a) Explain offset QPSK in details. 7  
b) Describe coherent detection in satellite communication. 7
5. a) Explain the major test equipments required at an earth stations? 7  
b) What is orbit? Derive an expression of transmission losses in satellite communication. 7
6. a) What are digital modulation techniques? Explain in detail. 7  
b) Explain atmospheric absorption in satellite communication. 7
7. a) Explain coherent and non coherent detection in detail. 7  
b) Explain details about VSAT. 7
8. Write a short note on: 14  
i) GPS navigation message.  
ii) C/A code.  
iii) Satellite signal acquisition.

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