

Exam.Code:0932  
Sub. Code: 6931

1058

B.E. (Electronics and Communication Engineering)  
Eighth Semester  
Elective IV & V

EC-818: Satellite Communication

Time allowed: 3 Hours

Max. Marks: 50

*NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Part.*

**x-x-x**

- Q1. (i) List the different types of satellite frequency bands and their applications in satellite communications.  
(ii) Define the Orbital parameters.  
(iii) Discuss some applications of a GPS system.  
(iv) What is the role of a transponder?  
(v) What is an EIRP?

**Part-A**

- Q2. (a) Draw and explain the working of a TT & C subsystem.  
(b) State and explain three Kepler's laws of planetary motion.
- Q3. (a) Briefly, explain the process of placement of a satellite in a geostationary orbit.  
(b) List and explain the various factors governing the design of satellite links.
- Q4. (a) Explain how a solar eclipse affects the working of a communication satellite? Mention the duration and months when the eclipse effects are maximum.  
(b) An earth station antenna has a diameter of 30m, has an overall efficiency of 68%, and is used to receive a signal at 4150MHz. At this frequency the system noise temperature is 79K when the antenna points at the satellite at an elevation angle of 28 degrees. What is the earth station G/T ratio under these conditions? If heavy rain causes the sky temperature to increase so that the system noise temperature rises to 88K, what is the new G/T value?

**Part-B**

- Q5. (a) Explain the Trilateration method used in GPS system to locate a receiver.  
(b) Explain in detail the concept of scintillation.
- Q6. (a) What type of problems occur that lead to signal loss on transmission through earth's atmosphere? Represent using suitable diagram.  
(b) What is a DOP? Discuss its types and relevance in GPS systems.
- Q7. (a) Write a short note on code and carrier phase measurements.  
(b) Describe briefly about the rain effects.

**x-x-x**