Exam.Code:0932
Sub. Code: 6764 (7)

1059

B.E. (Electronics and Communication Engineering)

Eighth Semester

EC-818: Satellite Communication

Time allowed: 3 Hours Max. Marks: 50

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

x-x-x

I. Attempt the following:-

a) The range between a ground station and a satellite is 42000 km. Calculate the free space loss a frequency of 6 GHz.

b) Define earth segment.

c) What is the role of a transponder?

d) What is noise power spectral density?

e) Give the difference between KU-band and the C-band receive only systems. (5x2)

UNIT – I

II. a) Discuss in detail about attitude control of a satellite.

b) Briefly, explain the process of placement of a satellite in a geostationary orbit. (2x5)

III. a) What is meant by Look angles? Explain them with reference to a geostationary satellite arid the earth station.

b) Explain how Kepler's and Newton's laws are used to describe the orbit. (2x5)

IV. a) Explain how a solar eclipse affect the working of a communication satellite? Mention the duration and the months when the eclipse effects are maximum.

b) From the calculation of system noise temperature, show that C/N ratio is directly proportional to G/T ratio. (2x5)

UNIT – II

V. a) What is a DOP? Discuss its types and relevance in GPS systems.

b) What type of problems occur that lead to signal loss on transmission through earth's atmosphere? Represent using suitable diagram. (2x5)

P.T.O.

VI. a) What is the effect of rain on the following: canting angle, ice crystal depolarization, tilt angle and antenna noise.

b) What do you understand by the term 'scintillation'? Briefly explain its types. Explain in detail. (2x5)

VII. a) Explain why a minimum of four satellites are visible at an earth location utilizing the GPS system for position determination.

b) Write a short note on code and carrier phase measurements. (2x5)

x-x-x