JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year II Semester Examinations, May - 2019
SATELLITE COMMUNICATIONS
(Common to ECE, ETM)

Time: 3 hours

Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a)	Define ascending node and argument of perigee.	[2]
b)	List various frequency ranges used for satellite communication.	[3]
c)	An amplifier has a quoted noise figure of 3 dB. What is its equivalent noise temperature?	[2]
d)	What are the advantages of GPS system?	[2]
e)	What is satellite packet switching?	[3]
f)	Compare TDMA and FDMA.	[2]
g)	What are the various signals transmitted by GPS satellites?	[3]
h)	What are the features of GPS?	[2]
i)	List out the advantages and disadvantages in positioning satellite in lower orbit.	[3]
j)	Describe the Pure ALOHA scheme.	[2]
		[3]

PART - B

(50 Marks)

2.	Explain various reasons for orbital perturbation which effects the satellite communication.	[10]

OR

3.a)	Describe Geostationary Transfer Orbit and AKM with neat diagrams.	
b)	Describe Geostationary Transfer Orbit with slow orbit raising with neat diagrams.	[5+5]

4.	Explain about Attitude and Orbit Control System in detail.	[10]

OR

5.	Explain system noise temperature and G/T ratio in detail.	[10]

6.	Explain various phenomena that leads to signal loss on transmission through the earth's atmosphere.	[10]

OR

7.a)	Explain TDMA and its frame structure with neat diagrams.	
b)	What are the different types of demand assignment multiple Access characteristics?	[5+5]

8. Draw the transmitter and receiver block diagrams of an earth station and explain its Working. [10]

OR

9. What is GPS? Describe the principle of GPS to find the position of a user. [10]

10.a) Define Packet and explain in detail about Packet Reservation.
   b) Discuss message transmission by FDMA. [5+5]

OR

11. Write short notes on:
   a) Message transmission by TDMA.
   b) Tree algorithm. [5+5]

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