

Enrollment No: _____

Exam Seat No: _____

C.U.SHAH UNIVERSITY

Winter Examination-2015

Subject Name : Satellite Communication

Subject Code : 5TE01SAT1

Branch :M.Tech (EC)

Semester : 1

Date :31/12/2015

Time :10:30 To 1:30

Marks : 70

Instructions:

- (1) Use of Programmable calculator and any other electronic instrument is prohibited.
 - (2) Instructions written on main answer book are strictly to be obeyed.
 - (3) Draw neat diagrams and figures (if necessary) at right places.
 - (4) Assume suitable data if needed.
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SECTION – I

- Q-1 Attempt the Following questions (07)**
- a. Define polar orbiting satellite.
 - b. Write the frequency range for C_ and X_ band in spectrum
 - c. Define earth orbiting satellite.
 - d. Write the principle on which a satellite works?
 - e. Enlist disadvantages of satellite communication.
 - f. Enlist types of Satellites.
 - g. 'Molniya Orbit Satellite is placed in an elliptical orbit' Justify
- Q-2 Attempt all questions (14)**
- a. Enlist the technical and application based features of INTELSAT. **5**
 - b. Describe the effects of atmospheric drag with help of suitable formulae and appropriate figures. **5**
 - c. Define apogee and perigee heights. **4**
- OR**
- Q-2 Attempt all questions (14)**
- a. Write brief notes on 'Universal time', 'Julian dates', and 'Sidereal Time' in connection to Satellite Communication System. **6**
 - b. State the Kepler's laws. Explain any two with help of formulae, figures and facts. **6**
 - c. Enlist salient features of HDTV display. **2**
- Q-3 Attempt all questions (14)**
- a. What do you understand by the concept of 'Limits of visibility'? Describe its technical significance. **4**
 - b. Explain the concept of Sun Transit Outage with help of suitable example. **4**
 - c. Define and explain the antenna look angles in detail. **6**

OR



Q-3	a. Compare prograde and retrograde orbits.	4
	b. Enlist the conditions required for an orbit to be Geostationary.	3
	c. Enlist the information needed to determine the look angles for a geostationary orbit.	3
	d. Write a technical note on ‘attitude control’ of a satellite.	4
SECTION – II		
Q-4	Attempt the Following questions	(07)
	a. Enlist various satellite services.	
	b. Define cross talk.	
	c. Why is a satellite placed in an inclined orbit of about 3 degree ?	
	d. What is the need of telemetering function?	
	e. Write importance of TWTA for satellite.	
	f. An antenna has a noise temperature of 35K and is matched into a receiver which has a noise temperature of 100K. calculate noise power density and noise power for bandwidth of 36 MHz.	
	g. Define inter-modulation noise.	
Q-5	Attempt all questions	(14)
	a. Which factors are responsible for limiting the number of sub-channels? Explain them with help of formulae wherever necessary.	6
	b. Define capacity allocation. Compare FAMA-FDMA with DAMA-FDMA	6
	c. Define: ‘Transponder’, and ‘Polarization’	2
OR		
Q-5	a. Write a descriptive note on TT&C subsystem.	5
	b. Explain with help of neat diagram ‘Receive-Only Home TV Systems’	6
	c. Discuss the salient features of VSAT.	3
Q-6	Attempt all questions	(14)
	a. Enlist the important features of MATV system. Draw needed diagram to explain the MATV concept.	4
	b. Explain the transmit receive earth stations’ technical concept. Draw detailed block diagram of transmit-receive earth station and describe functions of each module.	7
	c. Explain the concept of amplifier noise temperature with help of needed formulae.	3
OR		
Q-6	Attempt all Questions	
	a. Explain effects of rain on satellite communication. Discuss the importance of uplink and downlink rain-fade margins in this connection.	5
	b. What do you mean by inter satellite links? Explain, how to find the distance between two GEO satellites?	4
	c. Write short note on ‘MPEG Compression Standards’	5

