Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Summer Examination-2017

Subject Name: Satellite Communication

Subject Code: 4TE06SCM1 Branch: B.Tech (EC)

Semester: 6 Date: 21/04/2017 Time: 2:30 To 5:30 Marks: 70

Instructions:

(1) Use of Programmable calculator & 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.

Q-1		**Attempt all questions**	**(14)**
	(a)	Define the term prograde orbit.	1
	(b)	Define the term Argument of perigee	1
	(c)	Define the term retrograde orbit	1
	(d)	Define the term mean anomaly.	1
	(e)	Define the term true anomaly.	1
	(f)	Define the term calendars.	1
	(g)	Define the term universal time.	1
	(h)	State three conditions required for an orbit to be geostationary.	1
	(i)	Enlist three pieces of information that are needed to determine look angles the geostationary orbits.	1
	(j)	What is the period and height of geostationary orbit?	1
	(k)	How many geostationary orbits exist?	1
	(l)	What do you mean by polar mount antenna?	1
	(m)	Define the term attitude of satellite.	1
	(n)	Define the term EIRP.	1

Attempt any four questions from Q-2 to Q-8

Q-2		**Attempt all questions**	**(14)**
	(a)	Explain some of the applications in which satellite Communication is the only possible solution.	**6**
	(b)	Explain Side Real Day and Mean Solar Day. How they are related to each other.	**4**
	(c)	Write a short note on atmospheric drag.	**4**
Q-3		**Attempt all questions**	**(14)**
	(a)	Explain with diagrams Kepler's laws of planetary motion. Calculate the radius of a circular orbit for which the period is 1-day.	**7**
	(b)	Write a short note on Effects of a non-spherical earth on a satellite.	**7**

Q-4		**Attempt all questions**	**(14)**
	(a)	A geostationary satellite is located at 90°W. Calculate the azimuth angle for an earth-station antenna at latitude 35°N and longitude 100°W. Also Find the range and antenna elevation angle.	**6**
	(b)	Explain Universal time. Calculate the time in days, hours, minutes, and seconds for the epoch day 324.95616765.	**4**
	(c)	Explain in detail calendars.	**4**
Q-5		**Attempt all questions**	**(14)**
	(a)	What is the purpose of Telemetry, Tracking, Command, and Monitoring in satellite communication? Explain in detail.	**7**
	(b)	Explain Wideband Receiver with block diagram.	**7**
Q-6		**Attempt all questions**	**(14)**
	(a)	Explain Community Antenna TV system with necessary diagram.	**7**
	(b)	Explain various Losses that can occur during transmission.	**7**
Q-7		**Attempt all questions**	**(14)**
	(a)	Write short notes on Master Control Station required for Direct Broadcast Satellite Television (DBS-TV) system.	**7**
	(b)	What is VSAT? List the application of VSAT. Also Draw and explain the architecture of VSAT system.	**7**
Q-8		**Attempt all questions**	**(14)**
	(a)	What is GPS? Explain principle of GPS position location. Also explain signal generation in GPS.	**7**
	(b)	Write a short note on HDTV.	**7**