BE (E&TC) - Sem VIII 24/5/17

T4928 / T1826 SATELLITE COMMUNICATION & NETWORKS

(Time 3 Hours) **Q.P. Code :16614**

[Total marks: 80]

NB: 1) Question number 1 is compulsory
2) Answer any three questions out of remaining questions
3) Answer the questions with suitable diagrams
4) Assume suitable data wherever necessary

1 Answer any **Five-** 20
(a) Why the 'Earth sensors' are not used for sensing the 'Yaw' axis in GEO satellites?
(b) Why a multi-beam antenna is used in satellite communication?
(c) For the same area of solar array which configuration, spin stabilization or body stabilization, generate more power. Justify.
(d) Differentiate between window & frame organization.
(e) Why LNA in a satellite receiving system is placed at the antenna end of the feeder cable?
(f) Explain with diagram what is "Umbra" and "penumbra"? How it is affecting satellite operation?

2 (a) What are the different antenna tracking techniques of geostationary satellite? 10
(b) Discuss in detail Telemetry, tracking and command with necessary block diagram. 10

3 (a) What are the main considerations in the design of an earth station? And how the earth stations are classified? 10
(b) Explain the need of placing LNA next to Antenna, Calculate over all C/N Ratio for satellite if [C/N], uplink = 25db & [C/N], downlink = 20db Intermodulation Noise =12db 10

4 (a) Discuss Design Consideration of Earth station, Draw the block diagram for Transmit and receive earth station and explain. 10
(b) Compare Pre- assigned FDMA and Demand assigned FDMA 05
(c) Explain TDMA frame structure. 05

5 (a) Explain on board connectivity with Transparent processing. 10
(b) Discuss OSI Model for satellites Network also discuss layering principle. 05
(c) Why TWT amplifier is Preferred for satellite communication? 05

6 Write short notes on **any Four-** 20
(a) Optical satellite Transmitter and receiver
(b) Comparison of DS-CDMA, FH-CDMA and TH-CDMA.
(c) Launching Mechanism
(d) Reliability and space qualification test
(e) VSAT