Satellite Communication & Networks

Q. P. Code: 27442

(Time 3 Hours) **[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 **Four**-	**20**
	(a)	What advantage random access has over fixed access?	
	(b)	Is the velocity of satellite constant in an elliptic orbit? Justify your answer.	
	(c)	Explain why some satellites employ cylindrical solar arrays, whereas others employ solar-sail arrays to power generations.	
	(d)	What is the use of multi-tone tracking system?	
	(e)	Why is it necessary to employ antenna tracking in large earth stations?	
2	(a)	What are the functions of thermal sub-systems in satellite?	**06**
	(b)	Why the control system in satellite waits for an execute command after receiving the command table executed?	**04**
	(c)	Discuss in detail Telemetry, tracking and command with necessary block diagram.	**10**
3	(a)	Draw and explain working of Transmit and receive type of earth station.	**06**
	(b)	Why in satellite TV receiving system, a demodulation/ remodulation unit is needed?	**04**
	(c)	A geostationary satellite transmits 5 W of power with an antenna having a gain of 28dB. The downlink is operated at 4Ghz and the receiver antenna is a dish with diameter of 3.6 m. Compute the EIRP transmitted and the power received by the receiving station. Assume the receive antenna efficiency to be 0.7 and all the other losses to be 2dB	**10**

4 (a) Write short notes on **10**
   1) Inter modulation distortion and back-off in satellite communication.
   2) Combined uplink and downlink C/N ratio.
   (b) Explain Initial Acquisition in technique in TDMA system. **10**

5 (a) Explain on board connectivity with Transparent processing. **10**
   (b) Discuss OSI Model for satellites Network also discuss layering principle. **05**
   (c) What are the different configurations of VSAT network? What are their advantages and dis advantages? **05**

6 Write short notes on **any Four-** **20**
   (a) Optical satellite Transmitter and receiver
   (b) Asynchronous Transfer Mode (ATM) switching
   (c) Unique word detection
   (d) Improvement of reliability of satellite communication system.
   (e) GPS

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