

Roll No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(ECE) (2012 to 2017 E-II) (Sem.-7,8)

SATELLITE COMMUNICATION

Subject Code : BTEC-910

M.Code : 71914

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A**1. Answer briefly :**

- a) Define the terms burst and frame.
- b) Why the uplink and downlink frequencies are different?
- c) EIRP
- d) Noise figure
- e) Reference burst in TDMA system
- f) CSSB
- g) Interference effects on satellite link design
- h) VSAT
- i) Beam Hopping
- j) Burst time plan

SECTION-B

2. Explain the DA-TDMA burst structure. In what ways is it different from a simple TDMA burst structure?
3. Draw and explain the block diagram of optical satellite receiver. Derive an expression for its SNR.
4. What do you understand by path loss during satellite communication? Also explain its causes and remedies.
5. Write a note on CSSB systems and list its limitations if any.
6. A satellite at a distance of 39,000 km from the EIE departmental building radiates a power of 20 W from an antenna with a gain of 22 dB in the direction of a VSAT at the EIE building with an effective aperture area of 10 m^2 . Find:
 - a) The flux density at the departmental building
 - b) The power received by the VSAT antenna
 - c) If the satellite operates at a frequency of 11 GHz and the Earth Station (ES) antenna has a gain of 52.3 dB. Determine the received power.

SECTION-C

7. Explain the Erlang B formula. Describe how it can be used to calculate the improvement of DAMA over pre-assignment multiple access for a given traffic.
8. Derive general link equation for C/N and G/T ratios. Explain how these ratios affect satellite link design.
9. Write a short notes on :
 - a) CATV
 - b) Scintillation Effects

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.