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Total No. of Questions : 09] [Total No. of Pages : 02

B.Tech. (Sem. - 7th/8th)

SATELLITE COMMUNICATION

SUBJECT CODE : DE - 3.3 (Elective - III)

Paper ID : [A0336]

[Note : Please fill subject code and paper ID on OMR]

Time : 03 Hours **Maximum Marks : 60**

Instruction to Candidates:

1) Section - A is **Compulsory**.
2) Attempt any **Four** questions from Section - B.
3) Attempt any **Two** questions from Section - C.

Section - A

Q1) *(10 × 2 = 20)*

a) What are the factors on which noise temperature is dependent?

b) On the basis of which device satellite is called passive satellite?

c) Why uplink design is easier than downlink design?

d) What is main advantage in using CSSB link?

e) What type of effect will be caused by econosphere on satellite performance?

f) Why TDMA is not well suited to narrowband signals from small earth stations?

g) What is the drawback of FDMA in satellite communication system when transponder has non-linear characteristics?

h) What is pointing error in optical satellite link?

i) What is reference burst in TDMA system?

j) Why satellites are preferred for military applications?

Section - B

(4 × 5 = 20)

Q2) An earth station, has an overall efficiency of 74%, has a diameter of 45 m and is used to receive a signal at 5439 MHz. At this frequency, the system noise temperature is 81 K when the antenna points at satellite at an elevation angle of 25°. What is earth station G/T ratio under these conditions.

Q3) Discuss orbital aspects of satellite communication.

Q4) Determine the equation for power output of an uplink transmitter.

Q5) What is CSSB system, discuss in detail?

Q6) Explain BPSK detector with block diagram.

Section - C

(2 × 10 = 20)

Q7) (a) Describe DATDMA system.
(b) Discuss TDMA frame structure.

Q8) (a) Explain optical satellite link receiver with block diagram.
(b) Discuss tracking and pointing in optical satellite link.

Q9) Discuss data communication services and scientific studies by satellites. Also write advantages and disadvantages of using satellite for these services.

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