

Roll No.

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Paper ID [DE033]

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MAY-08

B.Tech. (Sem. - 8th)

SATELLITE COMMUNICATION (DE - 3.3)

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 do you mean by geostationary orbit. What is its advantage?
- b) What are the techniques applied to prevent satellite from tumbling?
- c) What do you mean by an earth station?
- d) Why the satellite up link frequency is different from down link frequency?
- e) What is the importance of orbital spacing?
- f) What is a Transponder?
- g) What is meant by Beam Hopping? Explain.
- h) What do you mean by single channel per carrier signalling? Explain giving specifications.
- i) What is the difference between Low-earth-orbit and High-earth-orbit satellites?
- j) Describe in brief beam acquisition.

Section - B

(4 × 5 = 20)

Q2) Discuss the interference effects on complete satellite link design.

Q3) Describe typical TDMA frame format.

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P.T.O.

- Q4)** An earth station uses a 3m diameter parabolic antenna to receive a 4-GHz signal from a geostationary satellite. If the satellite transmitter delivers 10W into a 3-m diameter transmitting antenna and the satellite is located 36,000 km from the receiver, what is power received?
- Q5)** Describe a simplified block diagram of a communications satellite transponder.
- Q6)** Describe with full specifications the transmission of broadcast - quality TV signals from a ground station.

Section - C

(2 × 10 = 20)

- Q7)** Compare and discuss important features of various digital modulation techniques.
- Q8)** Describe and compare SCPC and CSSB systems.
- Q9)** Write short notes on the following:
- (a) Erlang call congestion formula.
 - (b) Satellite link analysis.

