

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2023****Subject Code:3173212****Date:12-12-2023****Subject Name: Telecommunication Engineering****Time: 10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Explain sampling theory with example and diagram.	03
	(b) Draw and explain the block diagram of a pulse code modulation system for Speech communication.	04
	(c) Discuss Single stage Vs Multi stage Network with example.	07
Q.2	(a) Discuss operations of synchronous duplex mode of stored program control.	03
	(b) What are the broad categories of the enhanced services? Discuss three-party Conferencing connection.	04
	(c) Explain the N X N three stage switching network. Draw the Lee's graph to discuss its blocking probability.	07
	OR	
	(c) Explain level 1 processing and level 2 processing of distributed SPC in detail.	07
Q.3	(a) Discuss the international numbering plan for telephone network.	03
	(b) Discuss operations of standby mode of stored program control.	04
	(c) Classify signalling technique & compare Inchannel Vs Common Channel signalling.	07
	OR	
Q.3	(a) List charging plans for Telecommunication and discuss any two.	03
	(b) Explain input-controlled time division space switch.	04
	(c) Discuss Birth-death processes in detail.	07
Q.4	(a) Define: Erlang, BHCA, and Grade of service.	03
	(b) Draw and explain the basic scheme for Common Channel Signaling.	04
	(c) Explain briefly the architecture of SS7 System.	07
	OR	
Q.4	(a) Explain companding technique in detail.	03
	(b) Explain subscriber loop system.	04
	(c) Explain in detail LCC system with finite subscribers with derivation of blocking probability and GOS.	07

- Q.5** (a) Explain Time Multiplexed Space Switching. **03**
(b) Give classification of switching systems & In what way is stored program control superior to hard wired control? **04**
(c) Explain in detail with diagrams of Time slot interchange switch (TSI). **07**

OR

- Q.5** (a) Write a short note on Vocodor. **03**
(b) Describe satellite-based data networks in detail. **04**
(c) With help of a bar graph, explain typical telephone traffic pattern of an urban area on a working day and define different busy hours. **07**
