

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2023****Subject Code:2161103****Date:07-12-2023****Subject Name: Telecommunication Switching systems and Networks****Time:02:30 PM TO 05:00 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**
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|---|-----------|
| (a) Define (1) Erlang (2) Transit Exchange (3) Grade of service | 03 |
| (b) Draw and explain simplex telephone circuit with necessary. equations. | 04 |
| (c) Discuss briefly about single termination and multi termination switch board in telecommunication. | 07 |
- Q.2**
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| (a) Discuss briefly about cross point matrix and it's importance in connection making between called and calling user in telephone system. | 03 |
| (b) Explain the working of Touch-tone dialing keypad in telephone. | 04 |
| (c) Explain briefly the concept of Common Control Switching (CCS) in telecommunication | 07 |

OR

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| (c) Explain Crossbar switching matrix in detail with block diagram. | 07 |
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- Q.3**
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| (a) State the difference between Microprogrammed and Hard-wired control scheme in telephone switching. | 03 |
| (b) Derive the formula for availability and non-availability of processor in single and dual processor case. | 04 |
| (c) Discuss centralized Stored Programmed Control (SPC) with standby, Synchronous duplex and load sharing mode of dual processor. | 07 |

OR

- Q.3**
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|--|-----------|
| (a) Explain interrupt processing function of control subsystem in exchange. | 03 |
| (b) Compare: Micro-programmed control vs. Hard-wired control | 04 |
| (c) Discuss basic time division space switching with necessary switch configurations | 07 |
- Q.4**
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|---|-----------|
| (a) Explain channel association signaling with necessary diagram. | 03 |
| (b) Explain folded and non-folded network. | 04 |
| (c) Explain Birth Death Process in detail with state transition. | 07 |

OR

- Q.4** (a) Enlist the difference between In-channel and Common Channel Signaling. **03**
- (b) Write short note on ionospheric communication **04**
- (c) What are the advantages of Hierarchical Networks? Discuss the 5-level switching hierarchy recommended by CCITT. **07**
- Q.5** (a) Define connection oriented and connection less protocol. **03**
- (b) Write a Short note on EPABX **04**
- (c) With reference to data networks, explain with flow chart the operation of simple ARQ Protocol. **07**

OR

- Q.5** (a) Compare Circuit switching vs. Packet switching **03**
- (b) Draw the flow chart for p-persistence CSMA protocol **04**
- (c) Explain Briefly layered architecture of OSI model. **07**
