

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– VI (New) EXAMINATION – WINTER 2019****Subject Code: 2161009****Date: 12/12/2019****Subject Name: Telecommunication Switching and Applications****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.

- Q.1** (a) What do you mean by folded and un folded Networks? **03**
 (b) Give Classification of Switching Systems. **04**
 (c) Explain Broad band ISDN in detail. **07**
- Q.2** (a) Briefly Describe DTMF dialing. **03**
 (b) Define the following design parameters for switching systems.(i) Switching Capacity, SC (ii) Traffic handling Capability, TC (iii) Equipment Utilization Factor, EUF (iv) Call Set up Time ,Ts . **04**
 (c) Explain Load Sharing mode of Centralized SPC. **07**
- OR**
- (c) Explain Level 3 processing in Distributed SPC. **07**
- Q.3** (a) What do you mean by GOS. Give it's significance. **03**
 (b) Distinguish In-channel Signaling and Common-channel Signaling. **04**
 (c) Derive the design parameters for two stage network with multiple switching matrices in each stage. **07**
- OR**
- Q.3** (a) Define the blocking probability and give it's importance for Telephone NWs. **03**
 (b) Compare STS and TST Switch. **04**
 (c) Determine the design parameters of a Three stage switch with inlet utilization of 0.1 to achieve a $P_B=0.002$ for $N=2048$ and $N=8192$. **07**
- Q.4** (a) With respect to telecom traffic Engineering, Define the following.(i) Peak Busy Hour(ii) Time consistent Busy Hour(iii) MTBF **03**
 (b) Between two end offices, there is an average traffic of 24 Earlangs. If CCITT Standard 32 channel PCM link is used between the end offices, What is the probability of blocking? How much traffic is cleared by other resources if LCC model is assumed? **04**
 (c) In N-stage combination switching a trade-off between blocking probability and time delay is possible. Explain. **07**
- OR**
- Q.4** (a) Is TS Network non-blocking? Explain Briefly. **03**
 (b) With poisson arrival of two calls per minute, What is the probability that more than three calls arrive in two minutes? What is the time during which at least four calls will arrive with a probability of more than 95%? **04**
 (c) Briefly Describe Data transmission in PSTNs. **07**
- Q.5** (a) Mention the functions and role of Network Layer. **03**
 (b) Briefly describe Numbering Plan in Telephone Networks. **04**
 (c) Write short note on Satellite based Data Networks. **07**
- OR**
- Q.5** (a) Mention the functions and role of Transport Layer. **03**
 (b) Briefly describe charging Plan in Telephone Networks. **04**
 (c) Write short notes on LAN. **07**
