Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**BE – SEMESTER – VI (NEW).EXAMINATION – WINTER 2016**

**Subject Code: 2161103 Date: 25/10/2016**

**Subject Name: Telecommunication Switching systems and Networks**

**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.**

| | | | |
|---|---|---|---|
| **Q.1** | **(a)** | Define the following terms.<br>(i) Trunks (ii) Side tone (iii) ISDN (iv) Grade of service (v) DHCA (vi) Erlang (vii) centum call second. | **07** |
| | **(b)** | Explain simplex telephone communication and also explain how microphone and earphone works? | **07** |
| **Q.2** | **(a)** | Design and explain a non-blocking exchange for 100 line using two motion selectors? And also find out all the necessary design parameters. | **07** |
| | **(b)** | Explain touch tone dial telephone & its receiver scheme. | **07** |
| | | **OR** | |
| | **(b)** | Explain 3×3 and 6×6 crossbar switching. | **07** |
| **Q.3** | **(a)** | For two stage network, derive the equation for blocking probability. Also find out S and SC for blocking as well as non-blocking configuration. | **07** |
| | **(b)** | A 3-stage network is designed with the following parameters:<br>M=N= 512, p = q = 16 and α = 0.7. Calculate the blocking probability of the network if (a) s = 16, (b) s = 24, and (c) s = 31 using the Lee equation. Determine the inaccuracy of the result in case of (c) | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Write a short note on centralized store program control. | **07** |
| | **(b)** | Explain Enhanced service of stored program control. | **07** |
| **Q.4** | **(a)** | Describe Birth-Death process with the help of state transitions in contest of telephone traffic. | **07** |
| | **(b)** | Explain different signaling techniques in telecommunication network. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Discuss network architecture of ISDN. | **07** |
| | **(b)** | Explain LCR (Lost call Returned) system in traffic engineering model. | **07** |
| **Q.5** | **(a)** | Describe the terms of GOS (Grade of Service) and blocking probability and also explain how both the terms are different with suitable example. | **07** |
| | **(b)** | Explain switching techniques for data transmission. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | Write a short note on various LAN topologies. | **07** |
| | **(b)** | Write a short note on Link-to Link Layers. | **07** |

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