Printed Pages: 2

MEC-102

(Following Paper ID and Roll No. to be filled in your answer book)

Paper ID:

Roll No.

M.Tech

FIRST SEMESTER EXAMINATION, 2007-2008

TELECOMMUNICATION SYSTEM ENGINEERING

Time: 3hrs.

Max. Marks:100

Note: *Attempt any Five questions. All questions carry equal marks.*

Q1.(a) Consider the cross point complexity of three stage Clos networks.

(i) Show that strict sense network has roughly twice the complexity of the rearrangeable network.

(ii) For the rearrangeable network, show that the optimal choice of p (refer to the recursive construction of switching networks) for minimizing crosspoint count is $(N/2)^{1/2}$ which gives a cross point complexity of $2\sqrt{2}\,(N)^{3/2}$.

(iii) For the strict-sense network, show that the minimum cross point count is roughly given by $4\sqrt{2}\,(N)^{3/2}$.

(b) For the 8X8 Benes network, use the looping algorithm to find the paths for the following permutation:

input:	1	2	3	4	5	6	7	8
output:	3	6	2	1	8	4	5	7

Q2(a) Prove the Slepian Duguid theorem with the help of Paull's matrix.

(b) Draw and explain the SS7 architecture. What are the differences between Common Channel Signalling and in-band signalling.

Q3(a) Prove that the telecommunication switching system is a birth to death process.

(b) Differentiate between Markov and Poisson processes. Calculate the blocking probability of lost call cleared with infinite Solutions.