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NPTEL

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Courses » Digital Switching - I

Announcements

Course

Ask a Question

Progress

Mentor

Unit 2 - Introduction, Basic signaling, Strowger exchange, crossbar, crossbar operation algorithm.

Course outline

How to access the portal

Introduction, Basic signaling, Strowger exchange, crossbar, crossbar operation algorithm.

- Introduction to Telephony and Networks
- Strowger Automatic Exchange
- Crossbar Switching
- Logic Circuit for Crosspoint Operation
- Introduction to Multistage Interconnection Networks
- Quiz : Assignment Week 1
- Assignment Solution1

Call congestion and time congestion; Lee's approach, Karnaugh's approach

Strictly Non-blocking networks, Rearrangeably non-blocking networks; Clos

Assignment Week 1

The due date for submitting this assignment has passed. **Due on 2016-08-02, 23:59 IST.**

Submitted assignment

- 1) If N users are directly connected to an exchange then utilization factor of links is 1 point
- 0
 $1/(N-1)$
 1
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
 1

- 2) Access Networks connects 1 point
- Subscriber to Subscriber
 Subscriber to Exchange
 Exchange to Subscriber
 Exchange to Remote Concentrator

No, the answer is incorrect.
Score: 0

Accepted Answers:
 Subscriber to Exchange

- 3) If N users are connected to each other directly by dedicated links then the complexity of links will be 1 point
- $O(N^2)$
 $O(N)$
 $O(1)$
 $O(\log N)$

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $O(N^2)$

- 4) In a crossbar switch for N customers, the crosspoint utilization will be 1 point
- N
 $1/N$

Network; Paull's matrix; Clos theorem; Strictly non-blocking for f-way multicasting

Slepian Duguid theorem, its proof; Paull's theorem; Recursive construction; Crosspoint complexity for rearrangeably and strictly non-blocking networks

Cantor network; proof; Wide-sense non-blocking network – example network and proof

Packet Switching, Buffering strategies, Input Queued Switch, Output Queued switch

Banyan Networks, Delta Network, Shufflenet as Delta network – proof.

Buffered Banyan network (buffering at each switching element), Computational analysis

- 1/(2N)
 1

No, the answer is incorrect.

Score: 0

Accepted Answers:

1/(2N)

- 5) For a 8*8 crossbar switch, what will be the activate and deactivate sequence of control lines in order to connect following sequence of input output connections **1 point**
 1-2'4'7', 2-5', 7-6'8'

- R1↑C2↑C4↑R1↓C7↑, R1↓R2↑C5↑R2↓, R7↑C6↑C8↑
 R1↑C2↑C4↑C7↑R1↓, C5↑R1↓, R7↑C6↑C8↑R7↓
 R1↑C2↑C4↑C7↑R1↓, R2↑C5↑R2↓, R7↑C6↑C8↑R7↓
 R1↑C2↑C4↑C7↑, R2↑C5↑R2↓, R7↑C6↑C8↑R7↓R1↓

No, the answer is incorrect.

Score: 0

Accepted Answers:

R1↑C2↑C4↑C7↑R1↓, R2↑C5↑R2↓, R7↑C6↑C8↑R7↓

- 6) Which of the following statement is correct **1 point**

- A crossbar with NxN connection is a strictly non blocking switch and has O(N) complexity.
 A crossbar with NxN connection is not a strictly non blocking switch and has O(N²) complexity.
 A crossbar with NxN connection is a strictly non blocking switch and has O(N²) complexity.
 A two stage switch can be made strictly non blocking.

No, the answer is incorrect.

Score: 0

Accepted Answers:

A crossbar with NxN connection is a strictly non blocking switch and has O(N²) complexity.

- 7) The minimum number of crosspoint connection required to implement 20X20 connection is **1 point**

- 400
 190
 200
 40

No, the answer is incorrect.

Score: 0

Accepted Answers:

190

Previous Page

End



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