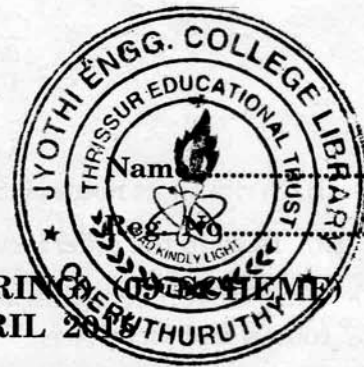


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**EIGHTH SEMESTER B.TECH. (ENGINEERING SCHEME)
DEGREE EXAMINATION, APRIL 2015**

EC/PTEC 09 801—DATA AND COMMUNICATION NETWORK

Time : Three Hours

Maximum : 70 Marks

Part A

Answer all questions.

1. Define continuous time and discrete time Markov chain.
2. What are tasks performed by the transport layer ?
3. What is the advantage of sliding window flow control compared to stop and wait flow control ?
4. What is the purpose of IEEE 802 standard ?
5. Give the expression for Erlang's-B formula.

(5 × 2 = 10 marks)

Part B

Answer any four questions.

6. Give the foundation of Poisson process in queueing system.
7. Discuss the salient features of character oriented and bit oriented protocols.
8. Discuss X MODEM and Y MODEM asynchronous protocols.
9. Show frame transmission and vulnerable time for slotted ALOHA and prove that the maximum utilization of slotted ALOHA occurs at $G = 1$ with value 36.8%.
10. Outline the various elements of traffic engineering.
11. If a group of 20 trunk carries 10 erlangs and the average call duration is 3 minutes, Calculate the average number of calls in progress and total number of calls originating per hour.

(4 × 5 = 20 marks)

Part C

Answer all questions.

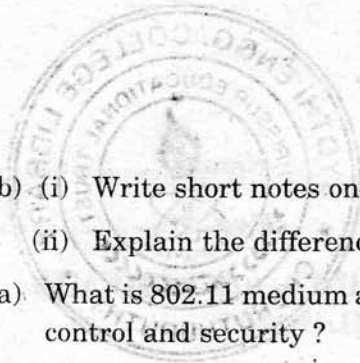
12. (a) Define Birth and Death process. Obtain its steady state probabilities. How could it be used to find the steady state solution for M/M/1 model ? Why is it called geometric ?

Or

(b) Discuss M/M/m/m queueing system using Erlang B formula. Also comment on M/M/m model for infinite server state.
13. (a) Explain various versions of ARQ strategies for error control mechanisms.

Or

Turn over



- (b) (i) Write short notes on Shortest Path routing. (4 marks)
- (ii) Explain the difference between datagram and virtual circuit operation. (6 marks)
14. (a) What is 802.11 medium access control? How does it work for the reliable data delivery, access control and security ?

Or

- (b) What is ATM architecture ? Where is it used ? Explain various switching fabrics used to route the cell from source end point to the destination end point.
15. (a) (i) What is multistage switching network? Explain the structure of three stage switches with neat diagram. (6 marks)
- (ii) A three stage switching structure is to accommodate $N = 128$ input and 128 output terminals. For 16 first stage and 16 last stage, determine the number of cross points for nonblocking. (4 marks)

Or

- (b) Explain the analysis of blocking models used for loss system.

(4 × 10 = 40 marks)