# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

## M.Sc. DEGREE EXAMINATION – PHYSICS

### SECOND SEMESTER – APRIL 2010

### PH 2954 - DATA COMMUNICATION & COMPUTER NETWORKS

Date & Time: 23/04/2010 / 1:00 - 4:00    Dept. No.                    Max. : 100 Marks

## PART A

Answer **ALL** questions:                                          10 x 2 = 20 marks

1. What is delay distortion?
2. Indicate two significant differences between radio waves and microwaves.
3. What do you understand by frame synchronization?
4. List the basic functions of a data link control protocol.
5. Differentiate guided and unguided transmission media, give an example.
6. List the concepts that are central to OSI (Open systems interconnection) reference model.
7. What are routing algorithms?
8. Write a note on Optimality principle.
9. Explain an Uniform Resource Locator (URL) with an example
10. Briefly explain the role of transport layer.

## PART B

Answer any **FOUR** questions:                                    4 x 7.5 = 30 marks

11. List and explain the different categories of noise.
12. Write short notes on (a) Frequency division multiplexing, (b) Synchronous time division multiplexing and (c) Statistical time division multiplexing. (3 x 2.5)
13. Tabulate the five service primitives for implementing a simple connection oriented service.
14. Explain the following techniques in detail to achieve good quality of service (a) Over provisioning, (b) Buffering (c) Leaky bucket algorithm. (3 x 2.5)
15. Explain in detail the basic functions of an e-mail system.

## PART C

Answer any **FOUR** questions:                                    4 x 12.5 = 50 marks

16. With neat sketches explain the basic encoding or modulation techniques for transforming digital data into analog signals.
17. List some of the requirements and objectives for effective data communication between two directly connected transmitting-receiving stations. Describe stop-and-wait and sliding window flow controls.  (5.5 + 7)
18. Explain the physical description, application and transmission characteristics of (a) twisted pair, (b) Coaxial cable (c) optical fiber. (4.5 + 4 + 4)
19. With neat sketches explain the different activities of link state routing algorithm.
20. Explain the architecture of World Wide Web with suitable examples.

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