



**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

**M.Sc. DEGREE EXAMINATION – PHYSICS**

**THIRD SEMESTER – NOVEMBER 2022**

**PPH 3601 – DATA COMMUNICATION AND COMPUTER NETWORKS**

Date: 02-12-2022

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

**PART- A**

**Q. No Answer all questions**

**(10 x 2 = 20 Marks)**

- 1 Describe physically a twisted pair.
- 2 Explain the function of a CODEC.
- 3 What are the types of HDLC configurations?
- 4 Give any two protocol definitions with their explanation.
- 5 Expand the following acronyms: IMP, UDP, HTML, SMTP.
- 6 List down any four current uses of computer networks.
- 7 Give the structure of the hybrid model.
- 8 List down the basic functions of email.
- 9 Describe how 'piggy backing' reduces congestion.
- 10 Explain the over provisioning technique for achieving Quality of Service.

**PART – B**

**Answer any four questions**

**(4 x 7.5 = 30 Marks)**

- 11 Explain the principle and working of the optical fibre cables.
- 12 Explain the CRC method of error detection with necessary steps and a suitable example.
- 13 Discuss the Client-Server model of computer networking.
- 14 Outline the salient features of an unrestricted Simplex (utopia) protocol.

- 15 What is noise? Categorize and explain its impact on data signals, with a neat diagram.
- 16 Illustrate the difference between datagram and virtual circuit subnet type of service.

**PART – C**

**Answer any four questions**

**(4 x 12.5 = 50 Marks)**

- 17 Explain in detail the most significant transmission impairments associated with data communication.
- 18 Write an elaborate note on the basic modulation techniques used for transforming digital data into analog signals.
- 19 With a neat sketch explain the frame structure of High-Level Data Link Control (HDLC).
- 20 Explain in detail the various types of data framing.
- 21 Give a detailed account of the most commonly used network hardware.
- 22 Elucidate the general principles of congestion control and discuss the leaky bucket algorithm to prevent congestion.

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