



QP CODE: 26019122



26019122

Reg No :

Name :

M.Sc DEGREE (CSS) EXAMINATION, MARCH 2026

Fourth Semester

M Sc PHYSICS

ELECTIVE - PH820402 - DATA COMMUNICATION AND COMPUTER NETWORKS

2019 Admission Onwards

9F0C4F0B

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. What is the relationship between a signal's spectrum and its bandwidth?
2. Why are the wires twisted in twisted-pair copper wire?
3. Write a short note on switched point to point network.
4. What is Network Interface Card?
5. What is called message switching?
6. Explain the term network architecture. What are the major types of network architecture.
7. Describe the term protocol in network terminology.
8. What is port address in networks? How is it useful?
9. Distinguish between static and dynamic web pages.
10. Write short note on Email security.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. If a binary signal is sent over a 3-kHz channel whose signal-to-noise ratio is 20 dB, what is the maximum achievable data rate?
12. What factors determine antenna gain?





13. Why is a statistical time division multiplexer more efficient than a synchronous time division multiplexer?
14. What do you mean by clock synchronization? Explain.
15. What are the four generic architectural components of a public communications network? Define each term.
16. List and explain the classification of networks based on physical size.
17. Discuss the advantages and drawbacks of ring topology.
18. Differentiate between Active threats and passive threats to network security.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

Weight 5 each.

19. Explain various modes of data transmission.
20. Explain Fourier series, Fourier transform and their applications in data communication.
21. Explain TCP/IP model and OSI reference model and give a comparison of two models.
22. Explain : 1. Cryptography 2. Secret key algorithm 3. Public key algorithm

(2×5=10 weightage)

