17. (a) Discuss the advantages and disadvantages of using cyclic codes for error control in a digital communication system.

Or

(b) Describe the trade-off between the amount of redundancy added by an FEC code and the ability of the code to correct errors.

18. (a) Explain the structure and format of IPv4 addresses and discuss the different classes of addresses that are available.

Or

(b) Describe the different routing algorithms used by the Internet Protocol (IP) to route packets between networks.

19. (a) Discuss the features of TCP, including its reliability mechanisms and error control techniques.

Or

(b) Discuss the advantages and disadvantages of using UDP and TCP in a computer network.

20. (a) Discuss the World Wide Web and the role of the HTTP protocol in enabling web browsing.

Or

(b) Explain the role of cookies in web browsing and their potential privacy implications.

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(For candidates admitted from 2018–2019 onwards)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Part III — Computer Science/Information Technology – Major

COMPUTER NETWORKS

Time : Three hours Maximum : 100 marks

PART A — (10 × 2 = 20)

Answer ALL questions.

1. What is the difference between LAN and WAN networks?

2. What is the difference between guided and unguided transmission media?

3. What is a wireless network and how does it differ from a wired network?

4. Explain how a satellite network can be used to provide internet access to remote areas?

5. Explain how packet switching works in a network and how it differs from circuit switching.

6. What is the purpose of a checksum in a data link layer protocol?

7. Explain the role of ports in the transport layer.

8. What is the difference between error detection and error correction in error control?

9. What is HTTP and what is its role in the World Wide Web?

10. What is FTP and how is it used to transfer files between computers over a network?

PART B — (5 × 6 = 30)

Answer ALL questions choosing either (a) or (b).

11. (a) Discuss the advantages and disadvantages of each type and provide an example of a situation in which each type of switch might be used.

Or

(b) Explain how signals are encoded and decoded in a digital communication system.

12. (a) Discuss the advantages and disadvantages of using a wireless access point compared to a wired connection device in a network.

Or

(b) Explain how a cyclic code can be used to correct burst errors in a data word.

13. (a) Discuss the main benefits of using this protocol compared to IPv6.

Or

(b) Explain in detail about circuit switching.

14. (a) Discuss the purpose and functions of transport layer protocols in a computer network.

Or

(b) Explain how windows are used in TCP and how they can affect the performance of a network.

15. (a) Explain how email works, including the role of SMTP and POP/IMAP protocols.

Or

(b) Describe how the application layer uses port numbers to identify different services.

PART C — (5 × 10 = 50)

Answer ALL questions choosing either (a) or (b).

16. (a) Discuss the types of transmission media and their characteristics.

Or

(b) Compare and contrast the different types of networks.