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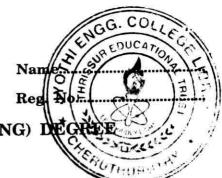
Name.....................

Reg. No.....................

EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, APRIL 2014

(2009 Scheme)

AI 09 802—DATA AND COMPUTER COMMUNICATIONS

Time : Three Hours

Maximum : 70 Marks

Part A

1. State the advantage of digital transmission over analog transmission.

2. What are the three types of characters used in data communication codes ?

3. State the difference between circuit switching and packet switching.

4. Name any *two* IEEE LAN standards.

5. What is DHCP ?

(5 × 2 = 10 marks)

Part B

Answer any four questions.

6. Explain the four modes of transmission for data communications.

7. Compare guided and wireless communication channels.

8. Explain the asynchronous and synchronous data formats used to achieve character synchronization in data communication.

9. Briefly describe any *two* Ethernet schemes.

10. Explain the token layout and data frame structure of FDDI.

11. What are some of the possible services that a link-layer protocol can offer to the network layer ? Which of these link-layer services have corresponding services in IP ? In TCP ?

(4 × 5 = 20 marks)

Part C

12. (a) With simplified block diagram, explain data communication network.

Or

(b) Prove that the equivalent bandwidth of a source increases with its variance and decreases with the acceptable average delay through the queue.

Turn over

13. (a) For a 12-bit data string of 101100010010, determine the number of Hamming bits required, arbitrarily place the Hamming bits into the data string, determine the condition of each Hamming bit, assume an arbitrary single-bit transmission error, and prove that the Hamming code will detect the error.

Or

(b) Determine the Block Check Sequence for the following data and CRC generating polynomials :

Data $G(x) = x^7 + x^5 + x^4 + x^2 + x^1 + x^0$

CRC $P(x) = x^5 + x^4 + x^1 + x^0$

14. (a) Explain the various subfields used with ATM header field and Information field.

Or

(b) Explain Cellular Wireless Networks and its applications.

15. (a) Discuss in detail about Internet protocol.

Or

(b) Explain in detail about Network security.

$(4 \times 10 = 40 \text{ marks})$