C 37225

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

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

FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, SEPTEMBER/OCTOBER 2004

CS/IT 2K 504. DIGITAL DATA COMMUNICATION

(New Scheme)

Time : Three Hours

Maximum : 100 Marks

Answer **all** *questions.*

1. (a) Name the four basic topologies, and give an advantage for each type.

   (b) Differentiate Network Operating System with Distributed Operating System.

   (c) Differentiate analog and digital representation of signals.

   (d) Differentiate synchronous and asynchronous transmission.

   (e) Define the following :—

      (i) Packetization delay.

      (ii) Mean packet transfer delay.

      (iii) Jitter.

   (f) What is meant by compression ? Mention the methods to compress text, audio, image and video data.

   (g) How does TDM combine multiple signals into one ?

   (h) For the data units of size 12 and 64, find the minimum number of redundancy bits needed to correct one single-bit error.

(8 × 5 = 40 marks)

Answer **one** *full question from each of the following units.*

2. (a) Differentiate internet and the internet. (5 marks)

   (b) Describe in detail the architecture of a network. Also bring out the importance of protocols and standards.

(10 marks)

Or

3. Compare the following transmission media :—

   (a) Twisted pair.

   (b) Optical fibre.

   (c) Wireless.

(3 × 5 = 15 marks)

Turn over

(a) Briefly mention the services provided by physical layer. (7 marks)

(b) Write notes on the following :—

(i) Serial communication. (ii) Parallel communication.

(iii) Asynchronous communication. (iv) Synchronous communication.

(4 × 2 = 8 marks)

Or

(a) If a single-mode optical fibre can transmit at 2 Gbps, how many telephone channels can one cable carry ? (3 marks)

(b) Write notes on the following :—

(i) Huffman coding.

(ii) Dynamic Huffman coding.

(iii) Facsimile compression.

(3 × 4 = 12 marks)

(a) Why should the window size be more than one in sliding window protocol ? (1 mark)

(b) Mention the parameters on which the size of window depends. Calculate the maximum size of window with the parameter chosen. (2 marks)

(c) Explain in detail the Go-Back-N ARQ sliding window protocol with reference to the following :—

(i) Normal operation.

(ii) Damaged or lost data/ack frame.

(iii) Piggy backing.

(3 × 4 = 12 marks)

Or

a) Explain in detail the CRC checksum procedure. (7 marks)

b) Explain in detail the selective repeat ARQ sliding window protocol. (8 marks)

a) Differentiate character oriented and bit oriented protocols. (5 marks)

b) Explain in detail the LAPB and LAPD protocols. (10 marks)

Or

a) Identify the various network components for broadband transmission. (5 marks)

b) Discuss how a home PC could be connected to a network. (5 marks)

c) What is meant by circuit switching ? (5 marks)

[4 × 15 = 60 marks]