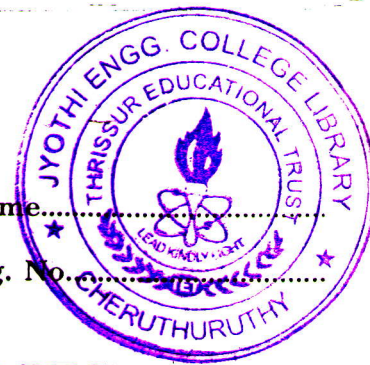D 42199

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FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, DECEMBER 2007

CS/IT 04 502 – DIGITAL DATA COMMUNICATION

(2004 admissions)

Time : Three Hours

Maximum : 100 Marks

I. (a) Explain the basic concepts of protocols.

   (b) State and explain Nyquist theorem.

   (c) What is encoding ? Explain its need.

   (d) What is a Modem ? Explain its principle with a neat sketch.

   (e) Hamming codes are also called Single Error correcting code. Why ? Explain.

   (f) Explain in detail about 'Switched and leased' analog services.

   (g) What is flew control ? Explain.

   (h) Describe in detail about character oriented protocol.

$$(8 \times 5 = 40 \text{ marks})$$

II. (a) (i) Explain the categories of networks in detail.

      (ii) Describe in detail about external and internal noise components.

$$(8 + 7 = 15 \text{ marks})$$

Or

   (b) (i) Define and explain noise figure. Derive an expression for noise figure interms of SNR.

      (ii) Derive an expression for channel capacity.

$$(8 + 7 = 15 \text{ marks})$$

III. (a) (i) Differentiate PPM from PDM.

      (ii) Explain in detail various digital modulation formats.

$$(8 + 7 = 15 \text{ marks})$$

Or

   (b) (i) Explain the principle of spread spectrum technique in detail.

      (ii) Explain in detail the principle of Satellite Communication for Data transmission.

$$(8 + 7 = 15 \text{ marks})$$

IV. (a) (i) Differentiate TDM from FDM.

      (ii) Draw a neat block diagram of TDM and explain its principle in detail.

$$(8 + 7 = 15 \text{ marks})$$

Or

Turn over

(b) (i) Derive the algorithm for Huffman Coding.

(ii) Explain in detail the features of dynamic Huffman Coding.

(8 + 7 = 15 marks)

V. (a) (i) Describe in detail about Go back N and selective repeat.

(ii) Differentiate Asynchronous protocols from synchronous protocols.

(8 + 7 = 15 marks)

Or

(b) Write short notes on : (i) Data link protocols ; (ii) HDLC.

(8 + 7 = 15 marks)

[4 × 15 = 60 marks]