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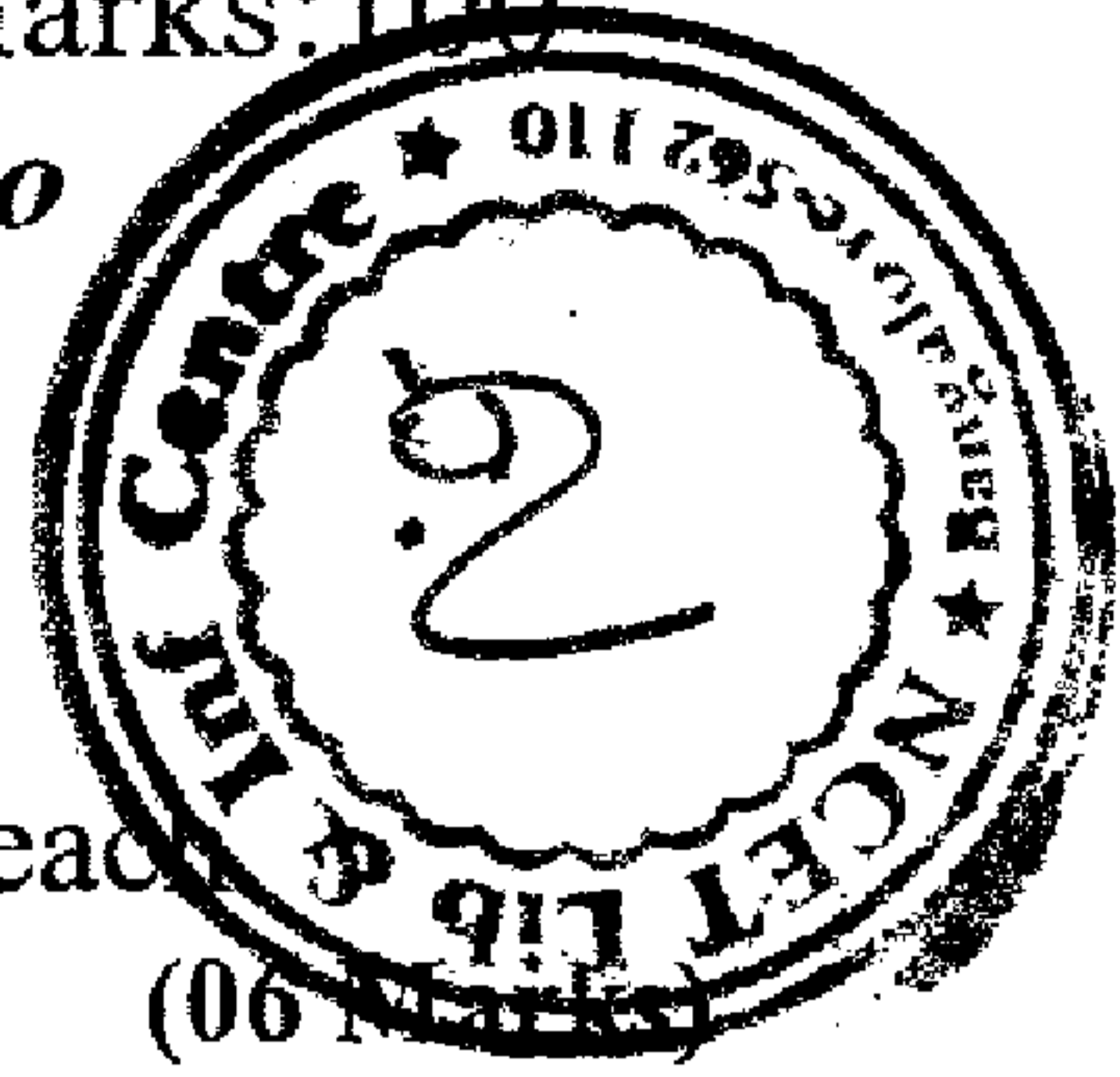
**Fifth Semester B.E. Degree Examination, June-July 2009**

**Computer Networks - I**

Time: 3 hrs.

Max. Marks: 100

**Note: Answer any FIVE full questions selecting at least Two questions from each part.**



**PART - A**

- 1 a. With neat diagram explain mesh topology and star topology with application of each. (06 Marks)
- b. What are standards? Name any four standard organizations. (06 Marks)
- c. Explain OSI reference model with functions of following layers  
i) Physical layer; ii) Data link layer; iii) Network layer. (08 Marks)
- 2 a. Explain three causes for transmission impairments. (06 Marks)
- b. Describe with neat waveform any two polar line coding schemes. (06 Marks)
- c. Give data rate formula suggested by Nyquist and Shannon. Low pass communication has BW of 1 MHz. What is Shannon capacity of channel if SNR is 40 db? What bit rate is attainable using 8-level pulses? (08 Marks)
- 3 a. With neat waveform, explain three methods of digital to analog conversion. Draw waveform with input data 110100. (06 Marks)
- b. What is multiplexing? With neat diagram explain FDM. (06 Marks)
- c. What is TDM? Four sources create 250 characters per second. The frame contains one character from each source and one extra bit for synchronization. Find: i) The data rate of each source; ii) Duration of each character in each source; iii) The frame rate; iv) Duration of output frame; v) Frame size in bits; vi) Data rate of link. (08 Marks)
- 4 a. Describe the physical and transmission characteristic of following:  
i) Twisted pair cable; ii) Fiber optic cable. (06 Marks)
- b. What is hamming distance? Explain simple parity check code C (5, 4) with  $d_{min} = 2$ . How many bits can be corrected? (06 Marks)
- c. What is CRC? If the generating polynomial for CRC code is  $x^4 + x^3 + 1$  and message word is 11110000, determine check bits and coded word. (08 Marks)

**PART - B**

- 5 a. Differentiate between character oriented and bit oriented format for framing. (06 Marks)
- b. Explain salient features of  
i) Stop – and – wait protocol; ii) Stop – and – wait ARQ protocol. (08 Marks)
- c. Explain briefly about point-to-point protocol. (06 Marks)
- 6 a. What is Random Access? Explain following Random access protocols.  
i) Slotted ALOHA; ii) CSMA / CD. (06 Marks)
- b. What is channelization? Explain CDMA. (06 Marks)
- c. Describe frame format for IEEE 802.3 MAC frame. What are salient features of fast Ethernet? (08 Marks)
- 7 a. Describe the MAC layers in IEEE 802.11 standard. (06 Marks)
- b. In brief explain blue tooth layers. (06 Marks)
- c. Bring out differences between Repeaters, Bridges, Routers and Gateways. (08 Marks)
- 8 a. Explain SONET multiplexing. (06 Marks)
- b. With neat diagram describe ATM architecture. (06 Marks)
- c. Discuss SONET STS – 1 frame format. Find data rate of an STS – 3 signals. (08 Marks)

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