

01832

ADCA / MCA (II Yr)

Term-End Examination

June, 2011

CS-09 : DATA COMMUNICATION AND NETWORKS

Time : 3 hours

Maximum Marks : 75

*Note : Question number 1 is compulsory. Answer any three questions from the rest.*

1. (a) Describe the operation of link state routing mechanism with the help of an example. 10
- (b) What is silly window syndrome ? What are its proposed solution ? Explain with the help of a diagram. 10
- (c) Draw the waveforms of : 5  
(i) ASK and (ii) FSK
- (d) Explain the principles of digital signature 5
2. (a) Show the relationship between ASes, backbones and area routers in OSPF through a diagram. Also, explain the operation of OSPF algorithm. 10
- (b) What is a subnet ? How is subnetting implemented ? 5

3. (a) What is Nyquist frequency ? Explain the effect when an analog signal is sampled at less than the Nyquist frequency. **10**
- (b) Differentiate between time division multiplexing and frequency division multiplexing. **5**
4. (a) Explain the following terms with respect to TCP. **10**
- (i) Stream data transfer.
  - (ii) Reliable Service.
  - (iii) Window Size.
  - (iv) Urgent Pointer.
  - (v) Check Sum.
- (b) Explain the functioning of Internet Control Message Protocol. **5**
5. (a) Derive an expression for throughput of pure ALOHA and slotted ALOHA. Why is this value of throughput less for pure ALOHA and how is it improved in slotted ALOHA ? **10**
- (b) An analog signal is limited to 4 kHz. It is converted to a PCM signal using 8 bit/sample. What is the bit rate on the transmission line ? **5**
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