

## BACHELOR IN COMPUTER APPLICATIONS

Term-End Examination

June, 2008

### CS-69 : TCP/IP PROGRAMMING

Time : 3 hours

Maximum Marks : 75

**Note :** Question no. 1 is **compulsory**. Answer any **three** questions from the rest.

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1. (a) Find the class of each address : 4
- (i) 240.5.51.85
  - (ii) 222.15.25.75
  - (iii) 11000100.01001000.01111000.11100001
  - (iv) 10101010.11000111.000111110.11100001
- (b) Find the error, if any, in the following IPv4 addresses : 4
- (i) 120.056.78.45
  - (ii) 115.15.20.15.7
  - (iii) 45.75.258.10
  - (iv) 65.14.01000010.25
- (c) Specify the number of byte(s) required for hostid for the following classes : 3
- (i) Class A
  - (ii) Class B
  - (iii) Class C

- (d) Explain 3-way handshaking mechanism used in TCP for the purpose of connection establishment and termination, with the help of a diagram. 9
- (e) Suppose a TCP connection is transferring a file of 5000 bytes. The first byte is number 15,001. What are the sequence numbers for each segment if data are sent in six segments, each carrying 1000 bytes? 6
- (f) Find the netid and hostid of the following IP addresses : 4
- 190.20.25.30
  - 115.30.60.65
  - 205.30.15.30
  - 129.30.40.50
2. (a) How is ICMP used to provide error control in Internet layer? Also, explain the different messages provided by ICMP. 6
- (b) Write short notes on the following with example : 9
- (i) IP subnet addressing
  - (ii) Supernetting
  - (iii) Client/Server model

3. Explain the purpose and importance of the following fields in TCP and IP : 15
- (i) Sequence number
  - (ii) Option + padding
  - (iii) Source port
  - (iv) Total length
  - (v) Header checksum
4. (a) How does the Name resolution take place ? Explain with the help of an example. 5
- (b) Explain the purpose of different UDP header fields. 4
- (c) Explain the working of Address Resolution Protocol. Compare it with RARP and BOOTP. 6
5. (a) Why is fragmentation needed ? Explain the fields in IP header used for fragmentation. Also, give an example to show the use of these fields. 7
- (b) Write short notes on : 8
- (i) SMTP
  - (ii) Router
  - (iii) DHCP
  - (iv) Ethernet