

**BACHELOR OF COMPUTER APPLICATIONS
(BCA) (Pre-Revised)**

Term-End Examination

June, 2015

00533

CS-69 : TCP/IP PROGRAMMING

Time : 2 hours

Maximum Marks : 60

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

1. (a) How can we prove that we have 2, 147, 483, 648 addresses in Class A ? 3
- (b) For what purpose is the function `getservbyname()` used in the context of socket programming ? 3
- (c) Suppose Class B network uses 20 out of 32 bits to define a network address. How many Class B networks are possible ? 3
- (d) How does TCP manage out-of-order segments, lost segments, duplicate segments and corrupted segments ? Explain with an example of each. 7

- (e) Write a client and a server program in C-language using UNIX socket programming. The client sends a string to a server. The server counts the length of a string and sends the result to the client. 8
- (f) Explain the concept of three-way handshaking mechanism for connection establishment in TCP. Use an appropriate diagram. 6
2. (a) Differentiate between the following : 6
- (i) Primary and Secondary DNS Server
 - (ii) Active and Passive Sockets
 - (iii) Class C and Class D addresses of IP
- (b) Explain the meaning of the following system calls : 4
- (i) bind ()
 - (ii) listen ()
 - (iii) socket ()
 - (iv) accept ()
3. (a) A DNS client is looking for the IP address of *www.ignou.ac.in*. Show the complete procedure of mapping a domain name to an IP address. 5
- (b) What is the use of flags in fragmentation of a packet ? Explain. 5

4. Explain the purpose and importance of the following IP and TCP header fields : 10
- (i) Header checksum
 - (ii) Type of service
 - (iii) Time to live
 - (iv) Urgent pointer
 - (v) Window
5. (a) What are the commands used by a user to connect to a remote host using FTP ? 3
- (b) What are the components of URL ? Explain. 2
- (c) Discuss the DNS message format. 5
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