

08501

## BACHELOR IN COMPUTER APPLICATIONS

Term-End Examination

December, 2011

### BCS-061 : TCP / IP PROGRAMMING

Time : 2 hours

Maximum Marks : 60

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**Note :** Question no. 1 is compulsory.

Answer **any three** from the rest.

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1. (a) Given the network address 222.39.85.0, find the class and the range of the addresses. 2
- (b) What is a problem with classful addressing ? Explain it with class-A addressing scheme. 4
- (c) In a class A subnet, the IP address of one of the hosts and the mask are as given below : 2  
IP address : 35.35.15.55  
Mask : 255.255.0.0  
What is the subnet address ?
- (d) What is the minimum size of TCP header ? 2

- (e) How is "error control" managed by TCP ? 6  
Explain through illustration.
- (f) Write a client and a server program in 8  
C - language to establish a TCP connection  
between a client and a server program.  
After a connection is established the client  
sends a string to the server. The server  
reverses the string and send the result to the  
client as a reply. Also explain the logic of  
the program.
- (g) What is a socket descriptor ? Explain. 3
- (h) How is IPV<sub>4</sub> header checksum calculated ? 3
2. Differentiate between the followings : 10
- (a) Active and Passive Sockets
- (b) Upward and Downward multiplexing
- (c) ARP and RARP
- (d) recv( ) and recvfrom( ) system calls
3. (a) How does DNS work in Internet ? Also 6  
explain what are domain servers ?
- (b) Explain through one example how to 4  
convert an integer before sending it through  
a socket and after reading how it can be  
converted back into original form.

4. Explain the purpose and importance of the following IP and TCP header fields : 10
- (a) Source port number
  - (b) Window size
  - (c) Sequence number
  - (d) Version number
  - (e) MF and DF flags
5. (a) Define the following terms : 6
- (i) Stream socket
  - (ii) Stateful and stateless programs
  - (iii) Concurrent connection-oriented server
- (b) How is internet mail access protocol different from post office protocol ? Explain. 4
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