



## IV SEMESTER B.TECH.

## (COMPUTER AND COMMUNICATION ENGINEERING)

END SEMESTER EXAMINATIONS, APRIL 2017

SUBJECT: TCP/IP PROTOCOL SUITE [ICT 2254]

REVISED CREDIT SYSTEM  
(28/04/2017)

Time: 3 Hours

MAX. MARKS: 50

## Instructions to Candidates:

- ❖ Answer **ALL** the questions.
- ❖ Missing data may be suitably assumed.

- 1A. A large number of consecutive IP addresses are available starting at 198.16.0.0/16. Suppose that four subnets, request 4000, 2000, 4000, and 8000 addresses, respectively. All these subnets are connected by a router  $R_1$ . For each of these subnets, find the first IP address assigned, the last IP address assigned, and the mask in the  $w.x.y.z/s$  notation. Also draw the corresponding topology and routing table for  $R_1$ . 5

- 1B. Show the building of forwarding table for the bridge B1, B2, B3 given in the figure Q.1B, when packet exchange occurs in the given order as below-

- i) X sends to Q
- ii) Z sends to R
- iii) P sends to B
- iv) Z sends to P
- v) Y sends to X

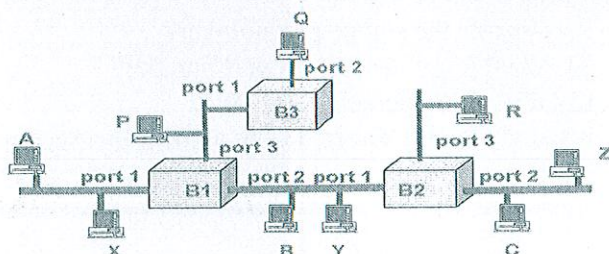


Figure Q.1B

- 1C. With a neat diagram explain working of *Connection-Oriented Concurrent Server*. 2

- 2A. Consider the following IP packet dump-

4500 0073 0000 4000 4011 0000 c0a8 0001 c0a8 00c7 0035 e97c 005f 279f 1e4b  
8180

- i) Draw the IP header in customary 4-byte sections format with field values given above. 5
  - ii) Calculate the checksum to be filled in checksum field. 5
- 2B. Discuss 'Record-route' IPV4 option along with packet format and example. 3
- 2C. Write the reasons for Ethernet frame having restrictions on minimum and maximum frame length. 2



- 3A. With neat diagrams, discuss various steps involved in DHCP operation.  
 i) When DHCP client and server are on the same network.  
 ii) When DHCP client and server are on the different network 5
- 3B. Discuss the three strategies devised by the IETF to help the transition from IPv4 to IPv6. 3
- 3C. Write the four different case in which services of ARP is required. 2
- 4A. Why wireless LAN cannot implement CSMA/CD? Draw a neat CSMA/CA access method flow diagram and explain exchange of data and control frames in time. 5
- 4B. Consider the Routing table given in Table Q.4B.-

Table Q.4B

Mask	Network Address	Next Hop	Interface
/26	180.70.65.192	-	m2
/25	180.70.65.128	-	m0
/24	201.4.22.0	-	m3
/22	201.4.16.0	....	m1
Default	Default	180.70.65.200	m2

- Show the forwarding steps if a packet arrives at the router with the destination address 201.4.22.35. 3
- 4C. Write about serious security problem associated with TCP connection establishment procedure and the strategies used to alleviate the effect of problem. 2
- 5A. Discuss following with respect to TCP  
 i) Two-types of acknowledgements and the rules followed to generate acknowledgements in TCP.  
 ii) Fast Retransmission scenario with neat figure. 5
- 5B. With a neat diagram, describe the services provided by network layer at Source Computer. 3
- 5C. The following is a dump of a UDP header in hexadecimal format.  
 00 0D 06 32 00 1C E2 17  
 i) What is the source port number?  
 ii) What is the destination port number?  
 iii) What is the length of the data?  
 iv) Is the packet directed from a client to a server or vice versa? 2

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