

GANPAT UNIVERSITY**B. Tech. Semester: VI Computer Engineering/Information Technology****Regular Examination May 2014****2CE602/2IT602: Network Protocols & Programming****Time: 3 Hours****Total Marks: 70**

- Instructions:**
1. Attempt all questions.
 2. Figures to the right indicate full marks.
 3. Each section should be written in a separate answer book.
 4. Assume suitable data if required.

SECTION – I

- Que.1** [A] Explain forwarding techniques of IP packets with classful addressing. [6]
 [B] Explain following terms. [6]
 1. ARP
 2. Proxy ARP

OR

- Que.1** [A] Explain following terms. [6]
 1. Address Aggregation
 2. Longest Mask Matching
 [B] Explain cache control module of ARP package with appropriate diagram and pseudo code. [6]

- Que.2** [A] Why today's Internet is divided into autonomous systems? Explain Distance Vector algorithm with example. [6]
 [B] What is RIP? Explain RIP's types of messages: request and response in detail. [5]

OR

- Que.2** [A] What is ICMP? Explain following Error Reporting messages of ICMP. [6]
 1. Redirection message
 2. Source quench message
 [B] Explain Dijkstra's algorithm with example. [5]

- Que.3** [A] Differentiate intra- and inter-domain routing. [2]
 [B] Find the result of each operation. [2]
 1. (22.14.70.34) AND (255.255.0.0)
 2. (12.11.60.12) OR (255.0.0.0)
 [C] An organization is granted the block 130.56.0.0/16. The administrator wants to create 1024 subnets. [4]
 1. Find the subnet mask.
 2. Find the number of addresses in each subnet.
 3. Find the first and the last address in the first subnet.
 4. Find the first and the last address in the last subnet (subnet 1024).
 [D] Give answer in brief: How link state routing algorithm creates routing table? [4]

SECTION – II

- Que.4** [A] Explain three-way handshaking mechanism of TCP connection establishment in detail. Briefly explain the security problem associated with it. [5]
 [B] Highlight the features of UDP and briefly discuss the same. [4]
 [C] Explain Multistream and Multihoming services of SCTP in detail. [3]

OR

- Que.4** [A] Explain slow start phase and congestion avoidance phase of TCP congestion control. [5]
 [B] Explain Network Virtual Terminal. [4]
 [C] How SCTP prevent the SYN flooding attack? [3]

- Que.5** [A] Explain IGMP Protocol. [4]
 [B] What is meant by message access agent? Explain two message access protocols. [4]
 [C] Discuss the need for DNS. [3]

OR

- Que.5** [A] Explain how emails are sent and retrieved between mail servers and users using SMTP. Can multimedia messages be transmitted using SMTP? [4]
 [B] What are the differences and similarities between UDP, TCP and SCTP? [4]
 [C] Explain the concept of SNMP. [3]

- Que.6** [A] Discuss HTTP and its transactions in detail. [5]
 [B] The configuration of a router R1 (routing table for router R1) is given in Table 1. Draw the topology of network using the given configuration. [4]

Table 1: Routing table of R1

| Mask | Network Address | Next Hop address | Interface number |
|---------|-----------------|------------------|------------------|
| /26 | 140.6.12.64 | 180.14.2.5 | M2 |
| /24 | 130.4.8.0 | 190.17.6.2 | M1 |
| /16 | 110.70.0.0 | ----- | M0 |
| /16 | 180.14.0.0 | ----- | M2 |
| /16 | 190.17.0.0 | ----- | M1 |
| Default | Default | 110.70.4.6 | M0 |

- [C] Explain ARP packet format. [3]

END OF PAPER