

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER-V EXAMINATION – SUMMER 2017

Subject Code: 650010**Date: 08-06-2017****Subject Name: ADVANCED NETWORKING (AN)****Time: 02:30 pm - 05:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 (a) Answer the following: (Each question of 1 mark) **07**

1. In the IPv4 Class-full addressing scheme, why are IP addresses termed as self identifying?
2. If a host is shifted from one network to another in the Internet, will its real IP address change?
3. Which Windows OS command can be used to view the IP address of a given host?
4. Why is an ARP request broadcasted even though the destination IP address of the destination host is known?
5. Suppose the IP address of a host changes. Is it necessary that its MAC address will change?
6. What is the purpose of the TTL field in the IPv4 protocol header?
7. What is the purpose of the PROTOCOL field in the IPv4 protocol header?

(b) Answer the following: (Each question of 1 mark) **07**

1. What is the advantage in accessing web-sites using their URL instead of directly using their IP addresses?
2. Differentiate between recursive and iterative DNS query resolution.
3. Why is NVT ASCII format required for Telnet?
4. Mention any one popular open source FTP client/server package.
5. What is the use of the port command in FTP?
6. What is the use of IMAP or POP3 protocol in email applications?
7. What is the use of MIME in email applications?

Q.2 (a) 1. Briefly explain: a) Loopback Address b) Bootstrap Address c) Limited Broadcast d) Directed Broadcast **04**
2. Explain how caching increases ARP efficiency. **03**

(b) 1. Briefly explain different DNS domains. **03**
2. Explain how the FTP control connection and data connection are formed. **04**

OR

(b) 1. Explain: IP Fragmentation **03**
2. Briefly explain: IP routing options **04**

Q.3 (a) 1. Explain next hop IP routing. **03**
2. Explain the forwarding process used by IPv4 in IPv4 routing. **04**

- (b) 1. Briefly explain any four ICMPv4 destination unreachable messages. **04**
 2. Mention any two applications for which UDP is suitable along with the reason. **03**
- OR**
- Q.3** (a) 1. Explain the working of “Echo Request” and “Echo Reply” ICMP Message. **04**
 2. Explain the significance of Pseudo-header in UDP. **03**
- (b) 1. What is the use of host specific route and default route in IPv4 forwarding? **02**
 2. What is meant by direct and indirect delivery in IPv4 forwarding? **02**
 3. Briefly explain how an IPv4 datagram is delivered within the same network. **03**
- Q.4** (a) 1. Briefly explain the approaches used for avoiding receiving side silly window syndrome in TCP. **04**
 2. Briefly explain the use of Nagle’s algorithm in TCP. **03**
- (b) 1. Briefly explain the working of a typical VPN system. **04**
 2. Write a note on: Port Mapped NAT. **03**
- OR**
- Q.4** (a) 1. Briefly explain: Use of Karn’s algorithm in TCP. **04**
 2. Mention the major features/characteristics of TCP. **03**
- Q.4** (b) 1. Write a short note on: DHCP **04**
 2. Mention the major fields in the DHCP message header. **03**
- Q.5** (a) 1. Briefly explain any five major characteristics of the HTTP protocol. **05**
 2. Differentiate between persistent and non persistent HTTP connection. **02**
- (b) 1. Differentiate between IPSEC AH and ESP. **02**
 2. Differentiate between IPSEC transport mode and tunnel mode. **02**
 3. Briefly explain: Security Association w.r.t. IPSEC. **03**
- OR**
- Q.5** (a) 1. Write a short note on: Packet Filtering Firewalls. **04**
 2. Write a short note on: Bastion Host with respect to Firewalls **03**
- (b) 1. Briefly explain the significance of monitoring and logging in firewalls. **03**
 2. Write a short note on : SSL **04**
