DHARMSINH DESAI UNIVERSITY, NADIAD
FACULTY OF TECHNOLOGY
B.TECH. SEMESTER IV [IT]
SUBJECT: (IT407) COMPUTER AND COMMUNICATION NETWORKS

Examination	**: Third Sessional**	**Seat No.**	**: _____**
Date	**: 02/04/2018**	**Day**	**: Monday**
Time	**: 10:00 to 11:15**	**Max. Marks**	**: 36**

INSTRUCTIONS:
1. Figures to the right indicate maximum marks for that question.
2. The symbols used carry their usual meanings.
3. Assume suitable data, if required & mention them clearly.
4. Draw neat sketches wherever necessary.

Q.1 Do as directed. **[12]**

(a) Suppose Host A sends two TCP segments back to back to Host B over a TCP connection. The first segment has sequence number 90; the second has sequence number 110 **[2]**
(a). How much data is in the first segment?
(b). Suppose the first segment is lost but the second segment arrives at B. In the acknowledgement that Host B sends to Host A, what will be the acknowledgement number?

(b) What are the disadvantages of static routing? **[2]**

(c) List out the terms available in UDP header. **[1]**

(d) FTP supports both types of connections, persistence and non-persistence. How? **[2]**

(e) Which of the following transport layer protocols is used to support electronic mail? **[1]**
(A) SMTP (B) IP
(C) TCP (D) UDP

(f) What is SYN flooding attack? **[2]**

(g) Identify the correct order in which the following actions take place in an interaction between a web browser and a web server. **[2]**
1. The web browser requests a webpage using HTTP.
2. The web browser establishes a TCP connection with the web server.
3. The web server sends the requested webpage using HTTP.
4. The web browser resolves the domain name using DNS.

Q.2 Attempt ***Any Two*** from the following questions. **[12]**

(a) Why do we need ARP and RARP? Describe four different cases in which the services of ARP can be used. **[6]**

(b) How does Distance Vector Routing Protocol work? Take on example and explain. **[6]**

(c) Discus open loop congestion control policies in detail with example. **[6]**

Q.3 (a) Consider an instance of TCP's Additive Increase Multiplicative Decrease (AIMD) algorithm where the window size at the start of the slow start phase is 2 MSS and the threshold at the start of the first transmission is 8 MSS. Assume that a timeout occurs during the fifth transmission. Find the congestion window size at the end of the tenth transmission. **[4]**

(b) What is Network Address Translation? Why do we need it? **[6]**

(c) How does Weighted Fair Queuing provide quality of service? **[2]**

OR

Q.3 (a) Explain the procedure for fragmentation with all necessary fields in IPv4 header. **[8]**

(b) What is digital signature? How to implement it using public key cryptography? **[4]**