Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV(New) EXAMINATION – SUMMER 2016

Subject Code:2140709 **Date:30/05/2016**

Subject Name:Computer Networks

Time:10:30 AM to 01:00 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 **Answer the following** **14**

1 For n devices in a network, what is the number of cable links required for a mesh topology?

2 _____ layer of OSI is responsible for process to process communication.

3 Source to Destination delivery of packet is responsibility of _____ layer.

4 UDP packets have fixed size header of ____ byte.

5 Define: Protocol.

6 What is the purpose of domain naming system (DNS)?

7 Error detection at datalink layer is achieved by?

a. Bit stuffing c. Cyclic redundancy codes
b. Hamming code d. Equalization

8 In OSI model dialogue control and token management are responsibilities of ?

a. Session layer c. Physical layer
b. Transport layer d. Network layer

9 How many ports computer may have?

a. 1024 c. 1023
b. 65535 d. 65634

10 subnet mask 255.0.0.0 belongs to _____ .

a. Class A c. Class C
b. Class B d. Class D

11 _____ addresses are used in multicasting.

a. Class A c. Class D
b. Class B d. Class E

12 In a broad sense, a railway track is an example of _____ .

a. Half-duplex c. Simplex
b. Full-duplex d. None of these

13 SOCK_STREAM sockets are used by _____ processes

a. UDP c. TCP
b. IP d. HTTP

14 Which layer of OSI is responsible for physical addressing?

Q.2 **(a)** What is topology? Explain star topology in brief. **03**

(b) A network with bandwidth of 10 Mbps can pass only an average of 12,000 frames per minute with each frame carrying an average of 10,000 bits. What is the throughput of this network? **04**

(c) The following is a dump of a UDP header in hexadecimal format. **07**

CB84000D001C001C

i. What is the source port number?
ii. What is the destination port number?

iii. What is the total length of the user datagram?
iv. What is the length of the data?

OR

	(c)	An ISP is granted a block of addresses starting with 120.60.4.0/20. The ISP wants to distribute these blocks to 100 organizations with each organization receiving 8 addresses only. Design the subblocks and give the slash notation for each subblock. Find out how many addresses are still available after these allocations.	**07**
Q.3	**(a)**	Explain distance vector routing protocol.	**03**
	(b)	One of the addresses in a block is 17.63.110.114/24. Find the first address, and the last address in the block.	**04**
	(c)	Consider the following HTTP message and answer the following questions:	**07**

```
GET /home.asp HTTP/1.1
Host: gtu.ac.in
Accept-Encoding: gzip, deflate, sdch
Accept-Language: en-US,en;q=0.8
Cookie: OGPC=5061921-11:5061952-13:5061985-24:5061983-27:5061968-13:5062004-
7:5062009-6:5062022-12:;
SID=DQAAALgBAAA3RAje9UlLOOSuH0G91uzL5JOJNUYU2aVOml6jEWVTCo9-
User-Agent: Chrome/49.0.2623.110
X-Client-Data: CIS2yQEIprbJAQjDtskBCP2VygE
Connection:keep-alive
```

i. From which browser URL is requested?
ii. Does browser request a non-persistent or a persistent connection?
iii. Which is the (complete) URL of the document requested by the user?
iv. Which HTML method is used to retrieve the requested URL?

OR

Q.3	**(a)**	What is network? Explain in brief about LAN and MAN.	**03**
	(b)	Explain following terms: i. Processing Delay ii. Transmission Delay	**04**
	(c)	What is routing loop? Discuss routing loop avoidance techniques.	**07**
Q.4	**(a)**	Draw and explain Ethernet header.	**03**
	(b)	Explain HTTP GET and HTTP POST method in detail.	**04**
	(c)	Draw the layered architecture of TCP/IP model and write at least two services provided by each layer of the model.	**07**

OR

Q.4	**(a)**	What are the issues of stop and wait protocol at transport layer? How selective repeat protocol resolves issues of stop and wait protocol?	**03**
	(b)	How UDP checksum value is calculated? Explain with suitable example.	**04**
	(c)	Draw TCP Segment structure and justify the importance of its field values.	**07**
Q.5	**(a)**	Explain connection less service of network layer.	**03**
	(b)	Write a note on cyclic redundancy check (CRC).	**04**
	(c)	Explain IPv4 datagram format and importance of each filed.	**07**

OR

Q.5	**(a)**	What is proxy server? What are the benefits of caching proxy server?	**03**
	(b)	Differentiate between IPv4 and IPv6.	**04**
	(c)	Write a note on “Dynamic Host Configuration Protocol”.	**07**

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