Student Exam No._____

GANPAT UNIVERSITY

B. TECH. SEM: V (COMPUTER ENGINEERING / INFORMATION TECHNOLOGY)

REGULAR EXAMINATION NOV-DEC 2016

2CE504 / 2IT504: COMPUTER NETWORKS

Time: 3 Hours] **[Total Marks: 60**

Instruction:
1: Figures to right side indicated full marks.
2: Each section should be written in a separate answer book.
3: Assume suitable data if required.
4: Be precise and to the point in your answer.

Section – I

Que. – 1 **[A]** Explain class full address mechanism in detail. **04**

[B] An IPv4 datagram has arrived with the following information in the header(in hexadecimal): **04**

0x 48 00 00 54 00 13 58 50 20 06 00 00 7C 4E 03 02 B4 OE OF 02

a. Is the packet corrupted?
b. Are there any options?
c. What is the size of the data?
d. What is the identification number of the packet?

[C] What is NAT? Show range of private address blocks. How can NAT helps in address depletion? **02**

OR

Que. – 1 **[A]** An organization is granted the block 211.17.180.0/24. The administrator wants to create 32 subnets. **04**

a. Find the subnet mask.
b. Find the number of addresses in each subnet.
c. Find the first and last addresses in subnet 1.
d. Find the first and last addresses in subnet 32.

[B] Draw IPV4 datagram header format. Specify the size of each term in bits. Explain HLEN and TTL field of it. **04**

[C] Explain silly windows syndrome problem with client side solution. **02**

Que. – 2 **[A]** TCP opens a connection using an initial sequence number (ISN) of 14,534. The Other party opens the connection with an ISN of 21,732. **04**

a. Show the three TCP segments during the connection establishment.
b. Show the contents of the segments during the data transmission if the initiator sends a segment containing the message "Hello dear customer" and the other party answers with a segment containing "Hi There seller."
c. Show the contents of the segments during the connection termination.

[B] Explain count to infinity problem (for two nodes) of Distance vector routing algorithm. What is the solution for the same? **04**

[C] What is the responsibility of Message Transfer agent in E-mail? **02**

OR

Que. – 2 **[A]** Discuss connection termination and half-close connection of TCP. **04**

[B] Draw ARP packet format and explain each term in detail. **04**

[C] Define following: **02**
a. FQDN **b.** PQDN

Que. – 3	**[A]**	Draw TCP header format. Show size of each term in bits. Explain windows size field in detail.	**04**
	[B]	Write short note on DNS protocol.	**04**
	[C]	Define Following: **a.** Socket Address **b.** IPV6	**02**

Section – II

Que. – 4	**[A]**	Explain OSI model in brief.	**05**
	[B]	Differentiate: Hub, Router and Switch.	**03**
	[C]	Differentiate: LAN, MAN, WAN	**02**

OR

Que. – 4	**[A]**	Differentiate between OSI and TCP/IP model. List out the reasons of using layered protocols architecture.	**04**
	[B]	Differentiate guided and unguided media. Explain any one guided media.	**04**
	[C]	Differentiate connectionless communication and connection-oriented communication.	**02**
Que. – 5	**[A]**	Generate the CRC code for message 1101011011 and the divisor is 10011. If third bit from left side is inverted during transmission then show that how CRC can check at receiver side whether any error exists or not.	**04**
	[B]	Explain various framing techniques in brief.	**04**
	[C]	A slotted ALOHA network transmits 200-bit frames on a shared channel of 200 kbps. What is the throughput if the system(all stations together) produces **a.** 1000 frames per second **b.** 500 frames per second	**02**

OR

Que. – 5	**[A]**	Differentiate Go Back N and Stop and Wait protocol.	**05**
	[B]	Define and discuss the use of minimum hamming distance? Find hamming distance for following.	**04**

Data word	Code word
00110	11110
10100	11011

	[C]	Define: Piggybacking	**01**
Que. – 6	**[A]**	Discuss the features of UDP and List down its application.	**04**
	[B]	Discuss CSMA/CD. What is need of MAC layer?	**04**
	[C]	In Selective Repeat, why the size of sender and receiver window can be at most one half of 2^m ?	**02**

END OF PAPER