Student Exam No._____

GANPAT UNIVERSITY

B. Tech. Semester: V (Computer Engineering / Information Technology)

Regular Examination Nov-Dec 2014

2CE504 / 2IT504 : Computer Networks

Time: 3 Hours] **[Total Marks: 70**

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]** What is Computer network? What are the uses of Computer networks? **04**

[B] What are the principal differences between connectionless communication and connection-oriented communication? **04**

[C] Differentiate OSI and TCP/IP model **04**

OR

Que. – 1 **[A]** Generate the CRC code for 1101101101. The divisor is 1010. During transmission of code word, one bit form right side on 4^{th} position is inverted. Show that this error is detected at the receiver side. **06**

[B] What is framing? Explain various methods used for carrying out the framing in detail. **06**

Que. – 2 **[A]** Explain types of frames for HDLC protocol in detail. **06**

[B] Why size of sending window of Go-bank-N ARQ is less than 2^m, where m is size of window. **05**

OR

Que. – 2 **[A]** Why CSMA/CA is used for wireless network? Explain IFS and contention window. **05**

[B] Explain X.25 devices (DTE, DCE, PSE), X.25 virtual circuits and X.25 Protocol Suite. **06**

Que. – 3 **[A]** A slotted ALOHA network transmits 1000-bit frames on a shared channel of 500 kbps. What is the throughput if the system(all stations together) produces (1) 1000 frames per second, (2) 500 frames per second and (3) 250 frames per second **06**

[B] Using 8-bit sequence numbers, what is the maximum size of the send and receive window for each of the following protocols? **03**
Stop-and-Wait ARQ, Go-Back-N ARQ, Selective-Repeat ARQ

[C] Define Following: **03**
Minimum hamming distance, piggy backing

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Section – II

Que. – 4	**[A]**	What is NAT? Show range of private address blocks. How can NAT help in address depletion?	**06**
	[B]	Explain following protocols: ARP and flooding	**06**

OR

Que. – 4	**[A]**	Explain IPv4 header and Fragmentation of IPv4 datagram in detail.	**06**
	[B]	Explain count to infinity problem (for two nodes) of Distance vector routing algorithm. What is the solution for the same?	**06**
Que. – 5	**[A]**	Explain following congestion control mechanisms: Back pressure and choke packet	**05**
	[B]	Explain following TCP features: Process-to-process delivery, IANA ranges, stream delivery service	**06**

OR

Que. – 5	**[A]**	Give uses of UDP protocol. Describe UDP header.	**05**
	[B]	Discuss connection termination and half-close of TCP.	**06**
Que. – 6	**[A]**	An organization is granted the block 20.0.0.0/10. The administrator wants to create 250 fixed-length subnets. 1. Find the subnet mask. 2. Find the number of addresses in each subnet. 3. Find the first and last addresses in subnet 1. 4. Find the first and last addresses in subnet 250.	**06**
	[B]	Write short note on SMTP.	**03**
	[C]	A packet has arrived in which the offset value is 150, the value of HLEN is 10, and the value of total length is 200. What is the number of first byte and last byte?	**03**

END OF PAPER