ROLL NO.

Code: CT32

Subject: COMPUTER NETWORKS

ALCCS

Time: 3 Hours

JUNE 2015

Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE:

- Question 1 is compulsory and carries 28 marks. Answer any FOUR questions from the rest. Marks are indicated against each question.
- Parts of a question should be answered at the same place.
- **Q.1** a. Compare OSI reference model with TCP/IP model.
 - b. What is the difference between a physical address, and network address?
 - c. What is the Shannon channel capacity for a telephone channel with bandwidth of 3400 Hz and *SNR* of 40db?
 - d. Find the error, if any, in the following IPv4 addresses.
 - i) 111.56.045.78
 ii) 221.34.7.8.20
 iii) 75.45.301.14
 iv) 11100010.23.14.67
 - e. Explain the working of CSMA/CD protocol.
 - f. What is birth death process? Briefly describe the Laws of Motion for Birth-Death.
 - g. Briefly explain the user Datagram protocol. (7×4)
 - Q.2 a. Explain the functions performed by the following layers of OSI model
 - (i) Physical layer
 - (ii) Data link layer
 - (iii) Presentation layer (9)
 - b. Represent the binary data 101011 in
 - (i) NRZ-unipolar
 - (ii) NRZ-polar
 - (iii) Bipolar
 - (iv) Manchester, encoding format (4)
 - c. Explain 'Flooding' and 'Deflection Routing' . (5)

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Q.3	a. Explain selective repeat A	RQ and obtain an expression for its efficiency	(9)	
	b. With neat block diagram explain Error detection system using check bits.			
	c. Measurements of a slotted ALOHA channel with an infinite number of users show that 10% of the slots are idle.			
	(i) What is the cha(ii) What is the thr	annel load, G? oughput?		
	(iii) Is the channel	under loaded or overloaded?	(4)	
Q.4	a. With neat format explain H	HDLC protocol.	(6)	
	b. Briefly explain Markov chain model and explain M/G/1 queues (6		(6)	
	c. Suppose that a group of 10 stations is serviced by an Ethernet LAN. How much bandwidth is available to each station if			
	 (i) the 10 stations are connected to a 10 Mbps Ethernet hub; (ii) the 10 stations are connected to a 100 Mbps Ethernet hub; (iii) the 10 stations are connected to a 10 Mbps Ethernet switch. 			
Q.5	a. Explain with neat format IEEE 802.3 protocol. (7)			
	b. Give the comparisons between circuit switching and datagram. (7)			
	 c. T1 carrier has a channel capacity of 1.544X10⁶ bits / sec. If 3000 km long T1 trunk is used to transmit 64 byte frames using Go – back – N protocol. How many bits the sequence number should be if the propagation speed is 6µs/km. 			
Q.6	a. With neat diagram explain IPv4 header format. (10)			
	b. Compare IPv4 and IPv6 protocol (4)		(4)	
	 c. Mention the type of address for the following IP address i) 126.33.44.56 ii) 195.55.23.96 iii) 122.122.124.126 			
	iii) 132.133.134.136 iv) 251.252.253.259 (4)		(4)	
Q.7	a. With neat diagram explain DES encryption algorithm. ((10)	
	b. With neat diagram explain how the connection will be released in a TCP. (8)		(8)	