Diplete - ET/CS (NEW SCHEME) - Code: DE69 / DC63

Subject: DATA COMMUNICATION & NETWORKS

Time	: 3 Hours	JUNE 2011	Max. Marks: 100			
QuanthThe thOutput	e space provided for it in the answer sheet for the Q.1 ve commencement of the exa	carries 20 marks. Answe to answer book supplied an will be collected by the invinination. HT Questions answer an	igilator after 45 Minutes of my FIVE Questions. Each			
Q.1	Choose the correct or the best alternative in the following: (2×10)					
	a. The Class C address cla each network.	ss can have network	s and about hosts in			
	(A) 256, 2 million (C) 256, 24 million	(B) 254, 4 mi (D) 254, 2 mi				
	b. What ARQ protocol is used in TCP?					
	(A) Go-Back-N(C) Flow control	(B) Sliding w (D) RARP	indow			
	c. The term broadband ref	ers to				
	 (A) digital transmission in atmosphere (B) analog transmission in atmosphere (C) digital transmission over coaxial cable (D) analog transmission over coaxial cable 					
	d. Statistical TDM is also called					
	(A) asynchronous TDM(C) analysis TDM	(B) synchrono (D) logical TI				
	e. Digitization refers to					
	(A) Sampling(C) Sampling and Quan	(B) Quantizat tization (D) Either (A)				
	f. A very popular baseband LAN Ethernet is essentially a					
	(A) Coaxial cable(C) Optical fibre	(B) Twisted v (D) None of t	-			

	g.	Which of the following types of signal requires the highest bandwidth for transmission?				
		(A) Speech (C) Video	(B) Music(D) Satellite links			
	h.	. Most commonly used protocol in Data Link Control procedures is				
		 (A) Sliding window protocol with go-back-N (B) Stop-and-wait sliding window protocol (C) Sliding window protocol in general (D) Sliding window with selective repeat 				
	i.	Which of the following is application layer protocol?				
		(A) ARP (C) RARP	(B) FTP (D) TCP			
	j.	. Attenuation in an optical fiber can be as small as				
		(A) 20 dB/km (C) 2 dB/km	(B) 0.2 dB/km (D) 0.02 dB/km			
Answer any FIVE Questions out of EIGHT Questions. Each question carries 16 marks.						
Q.2	a.	What are the key benefits of layered	I network?	(4)		
	b.	b. What do you mean by OSI? Briefly write functionalities of different OS layers.		(8)		
	c.	How two adjacent layers communic	ate in a layered network?	(4)		
Q.3	 a. Let us consider the telephone channel having bandwidth B = 4 kHz. Assumithere is no noise; determine channel capacity for the following encodil levels: (i) 2, and (ii) 128. 		_			
	b.	The digital signal is to be designed to permit 160 kbps for a bandwidth of 20 kHz. Determine (i) number of levels and (ii) S/N ratio. (6)				
	c.	What are the possible digital-to-ana you mean by 'QAM'?	alog modulation techniques? What do	(6)		
Q.4	a.	In what way synchronous and async differ?	chronous serial modes of data transfer	(4)		

	b.	The ASCII character 'A' (41H) is sent using RS-232C interfact asynchronous mode. Draw the time domain graph assuming baud rate of bits per second.	
	c.	What is bit-stuffing? Why is it used?	(7)
Q.5	a.	Explain how Selective-repeat ARQ works.	(6)
	b.	What is piggybacking? What is its advantage?	(4)
	c.	Compare synchronous TDM with statistical TDM.	(6)
Q.6	a.	Explain in detail how circuit switching takes place.	(6)
	b.	Distinguish between virtual-circuit and datagram type packet switching.	(4)
	c.	What are several drawbacks associated with the use of adaptive ro compared to fixed routing?	uting (6)
Q.7	a.	Write a brief note on three variations of CSMA protocol.	(8)
	b.	List out the advantages and drawbacks of bus and ring topology.	(8)
Q.8	a. Describe IP header format with the help of a diagram. Also briefly de each field.		e (10)
	b.	What do you mean by Address Resolution Protocol?	(6)
Q.9		Write short notes on:	
		(i) Working of e-mail(ii) Comparison of TCP and UDP.(iii) Multicasting.	(6) (5) (5)