



15/11/18

Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058
(An Autonomous Institute Affiliated to University of Mumbai)

End Semester Examination

Nov/ Dec. 2018

Max. Marks: 60

Class: T.E

Course Code: IT52

Name of the Course: Computer Networks

Duration: 180 Minutes

Semester: V

Branch: IT

Instructions:

- (1) All Questions are Compulsory
- (2) Draw neat diagrams
- (3) Assume suitable data if necessary

Question No.		Max. Marks	CO
Q 1 (a)	Draw OSI and TCP/IP model .Compare and contrast these with respect to the functionality of each layer	6	1
Q 1 (b)	Write short notes on (Attempt any two) (i) FTP (ii) connectionless service (iii) optical fiber cable	6	2&4
Q2 (a)	Illustrate the working of selective repeat ARQ protocol with suitable example OR Explain Cyclic redundancy code . Obtain the 4-bit CRC code word for the data bit sequence 001110110010000 using the generator polynomial $x^4 + x^2 + 1$	6	4
Q2 (b)	In Go-back-N ARQ, the size of the sender window must be less than 2^m , where m is the number of bits used for the representation of sequence numbers. Show in an example, by drawing a message sequence, why the size of the sender window must be less than 2^m .	6	4
Q3 (a)	Describe the strategies for avoiding collisions in random access protocol CSMA/CA?	6	4
Q3 (b)	List the channelization protocols and explain CDMA with example. Why collision is an issue in random access protocols but not in channelization protocols	6	4



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Q4 (a)	Explain link state routing. Mention the advantages and disadvantages of link state routing	6	3
Q4 (b)	An organization is assigned a class C network address 192.203.17.0 . It is to be divided into 3 subnets corresponding to three departments having at least 110, 45 and 50 hosts respectively. Design the subnet and show the subnetmask .	6	3
Q5 (a)	Explain TCP congestion control mechanism OR Draw neatly TCP header. Also for the following hexadecimal dump of TCP header 05320017 00000001 00000000 500207FF 00000000, identify parts of TCP header	6	4
Q5(b)	Host A has established connection with Host B. Now Host A sends two TCP segments to Host B containing 80 and 40 bytes of data, respectively. Assume that 1 st segment sequence no# is 127, the source port is 302, and the destination port number is 80. Host B sends an acknowledgment whenever it receives a segment from Host A. Suppose 1 st acknowledgment is lost and the 2 nd acknowledgment arrives after the first time-out interval. Draw a timing diagram, showing these segments and acknowledgment sent. For each segment in your figure, provide the sequence number/acknowledge number and the number of bytes of data	6	4