APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY
08 PALAKKAD CLUSTER

Q. P. Code : CS-1EB-19-1 **(Pages: 4)** **Name:** .....

Reg. No: .....

FIRST SEMESTER M.TECH. DEGREE EXAMINATION DEC 2019

Branch: Computer Science and Engineering Specialization: Computer Science and Engineering

08 CS 6051(B): Advanced Network Technologies

Time:3 hours **Max.marks: 60**

Answer all six questions.

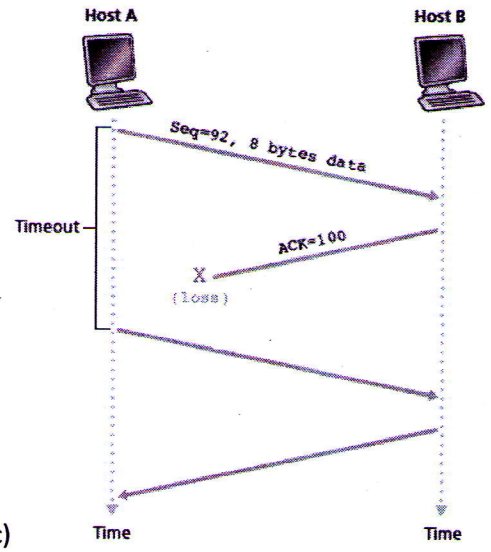
Modules 1 to 6: Part 'a' of each question is compulsory and answer either part 'b' or part 'c' of each question.

Q.no.	Module 1	Marks
1.a	How 'Trap' message type of SNMP gets different from 'Request-Response' messages? Give the Protocol Data Unit (PDU) structure for each.	3
	Answer b or c	
b	Which application layer protocol helps us to get rid of remembering complete IP addresses of the hosts in the Internet and allows us to easily browse using hostnames and how?	6
c	Consider an application that transmits data at a steady rate (for example, the sender generates an N-bit unit of data every k time units, where k is small and fixed). Also, when such an application starts, it will continue running for a relatively long period of time. Would a packet-switched network or a circuit-switched network be more appropriate for this application? Why?	6

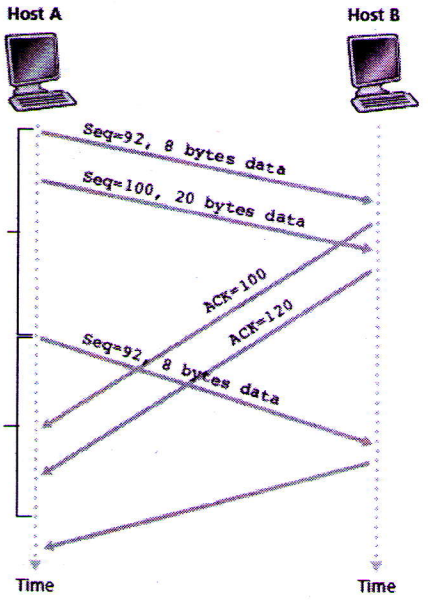
Q.no.	Module 2	Marks
2.a	List any three applications that run with UDP as the transport layer protocol and justify the use of UDP over TCP for each of them.	3
	Answer b or c	

b Each of the following figures illustrates some interesting facts about TCP reliable data transfer. For each of the given scenarios, label the arrow with missing label and explain the theoretical concepts behind it. **6**

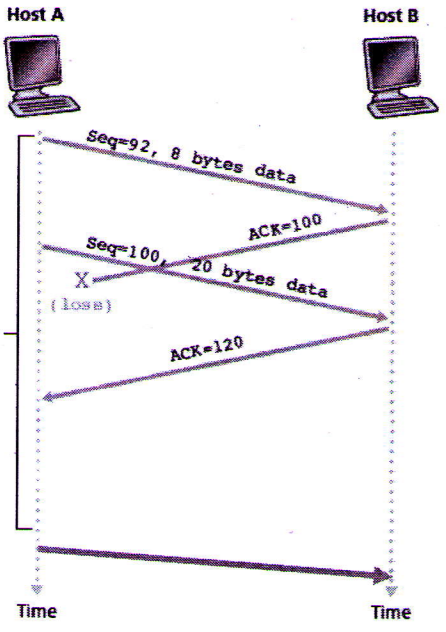
a)



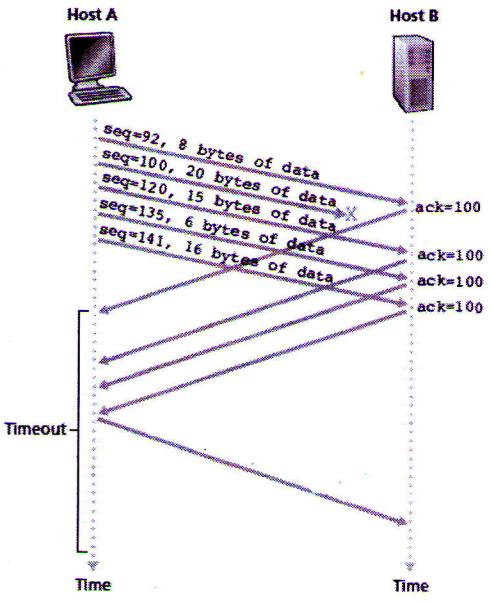
b)



c)



d)



c Why TCP congestion control strategy is named Additive Increase Multiplicative Decrease (AIMD)? **6**

Q.no.	Module 3	Marks
3.a	Consider sending a 2400-byte datagram into a link that has an MTU of 700 bytes. Suppose the original datagram is stamped with the identification number 312. How many fragments are generated? What are the values in the various fields in the IP datagram(s) generated related to fragmentation?	3

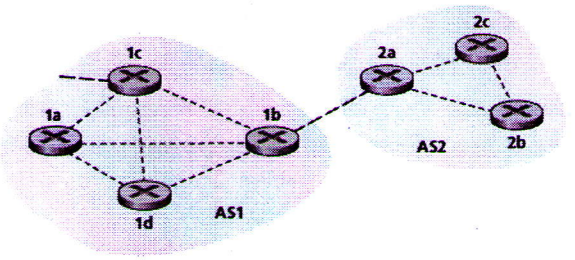
Answer b or c

b	i)	Compare and contrast virtual circuit and datagram network.	3
	ii)	Consider a datagram network using 32-bit host addresses. Suppose a router has four links, numbered 0 through 3, and packets are to be forwarded to the link interfaces as follows:	3

Destination Address Range	Link Interface
11100000 00000000 00000000 00000000 through 11100000 00111111 11111111 11111111	0
11100000 01000000 00000000 00000000 through 11100000 01000000 11111111 11111111	1
11100000 01000001 00000000 00000000 through 11100001 01111111 11111111 11111111	2
Otherwise	3

Provide a forwarding table that has five entries, uses longest prefix matching, and forwards packets to the correct link interfaces.

c	Consider the network given below, where AS denotes 'Autonomous System':	6



Explain about the routing protocol which helps the router '2a' to obtain subnet reachability information from neighbouring AS1..

Q.no.	Module 4	Marks
4.a	Differentiate two modes of VPN.	3

Answer b or c

b	How packet loss and packet jitter get compensated in Voice Over IP (VOIP)?	6

c Present the concept of 'Ubiquitous Computing' with a case study. 6

Q.no.	Module 5	Marks
5.a	Differentiate DAS, NAS and SAN.	4

Answer b or c

b	How to make SAN storage performs well?	8
c	What is the role of fibre channel in SAN? List the layers and functionalities of Fibre Channel Protocol.	8

Q.no.	Module 6	Marks
6.a	A part of output from a single run of the utility 'netstat' is given below. Interpret the same.	4

```
Active Internet connections (including servers)
Proto Recv-Q Send-Q  Local Address          Foreign Address        (state)
tcp        0      0  bsd4.telnet           205.153.60.247.3473    TIME_WAIT
tcp        0  17458  bsd4.chargen          sloan.1244             ESTABLISHED
tcp        0      0  *.chargen             *.*                    LISTEN
tcp        0      0  *.discard             *.*                    LISTEN
```

Answer b or c

b	Which utility forms the basis for "connectivity testing"? How it works? What are the issues associated with the same and alternatives?	8
c	How generic troubleshooting differ from task-specific troubleshooting?	8