INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)
Dundigal, Hyderabad - 500 043

COMPUTER SCIENCE AND ENGINEERING(CYBER SECURITY)

QUESTION BANK

Course Title	**NETWORK PROGRAMMING AND MANAGEMENT**				
Course Code	ACCCO5				
Program	B.Tech				
Semester	V	CSE(CS)			
Course Type	Elective				
Regulation	IARE - UG20				
Course Structure	Theory			Practical	
	Lecture	Tutorials	Credits	Laboratory	Credits
	3	0	3	-	-
Course Coordinator	Dr. R Obulakonda Reddy, Professor				

COURSE OBJECTIVES:

The students will try to learn:

I	The basic concepts of connection oriented communication over network.
II	The concepts of multiplexing in client server environment
III	The functions and protocols needed for connection less communication over networks
IV	The management concepts and practical issues of simple network management protocols.

COURSE OUTCOMES:

After successful completion of the course, students should be able to:

CO 1	**Interpret** TCP Socket functions between client and server to listen to the TCP port for incoming connections	Understand
CO 2	**Make use of** different boundary conditions in the server and I/O multiplexing to establish the connection in the network	Apply
CO 3	**Match** each of the socket options for each of the layer in the TCP/IP stack to improve the performance of wired network connections	Remember

CO 4	**Recall** the UDP socket functions to maintain low – latency and loss – tolerance connections between applications on the internet	Remember
CO 5	**Demonstrate** the working of different communication protocols that helps to create secure socket applications.	Understand
CO 6	**Illustrate** various network management protocols for monitoring and control of networks on Local Area Network or Wide Area Network.	Understand

QUESTION BANK:

Q.No	QUESTION	Taxonomy	How does this subsume the level	CO's
MODULE I				
ELEMENTARY TCP SOCKETS				
PART A-PROBLEM SOLVING AND CRITICAL THINKING QUESTIONS				
1	Demonstrate the use of TCP and UDP	Understand	The learner will try to **recall** TCP and UDP and then **explain** the differences between them	CO 1
2	State the definite meaning of IP	Understand	The learner will try to **recall** the IP definition.	CO 2
3	Compare TCP and UDP	Understand	The learner will try to **recall** the meaning of TCP and UDP and then **explain** the differences between them	CO 2
4	Analyze the three states of TCP connection establishment and termination	Understand	The learner will try to **recall** the concept of TCP connection establishment and termination and then **explain**the working among them	CO 1
5	Describe the meaning of sockets and List out different types of sockets	Understand	The learner will try to **recall** the concept sockets and then **explain** the types of sockets.	CO 1
6	Demonstrate socket address structure using sockaddr_in.	Understand	The learner will try to **recall** the concept of socket address structure and then **explain** its purpose in communication	CO 1

7	Interpret IPv4 address structure with the POSIX definition	Apply	The learner will try to **recall** the concept of IPv4 address structure and then **explain** its purpose in communication	CO 2
8	What are the four functions to pass socket address structure from kernel to the process?	Apply	The learner will try to **recall** the the concept of socket address stryctures and the functions in it.	CO 2
9	Rephrase the New Generic Socket Address Structure using sockaddr_storage.	Apply	The learner will try to **recall** the definition of Generic Socket Address Structure and apply sockaddr_storage to it.	CO 2
10	Distinguish various socket address structures uning neat diagram.	Understand	The learner will try to **recall** the concepts of various socket address structures and then **explain** various address structures of it.	CO 2
PART-B LONG ANSWER QUESTIONS				
1	i) Compare the implementation details of concurrent and iterative server. ii) Discuss the syntactical issues of various address conversion functions	Understand	The learner will try to **recall** the concurrent and iterative server and then **explain** syntactical issues of various address conversion functions	CO 1
2	i)Differentiate the IPv4,IPv6, Unix domain and data link socket address structures. State your assumptions. ii) Summarize byte ordering functions	Understand	The learner will try to **recall** the various byte ordering functions and then **explain** about them.	CO 2
3	i) Explain in detail about TCP/IP protocols for internetworking and management. ii) Express about socket, connect, bind, listen and accept functions.	Understand	The learner will try to **recall** the various classification of TCP/IP protocols for internetworking and management and **explain** them.	CO 1

4	Demonstrate TCP/IP layering in detail with neat sketch.	Understand	The learner will try to **recall** how cruise and ballistic missile works and then **explain** the differences between them	CO 2
5	Explain in detail about address conversion functions	Apply	The learner will try to **recall** Newton's law of motion and then **derive** the ideal rocket equation and **Apply** it in determining specific impulse and payload ratio	CO 2
6	Explain in detail about IPv4 address structures	Understand	The learner will try to **recall** the position of COG and COP and then **explain** various stability conditions during powered and coasted flight	CO 2
7	Explain the required socket functions for implementing a UDP client / server application?	Understand	The learner will try to **recall** the various aerodynamic forces and then **explain** the various classification of missiles and then **explain** the classification based on launch mode	CO 1
8	Demonstrate the TCP state transition diagram	Understand	The learner will try to **explain** the TCP state transition prototype.	CO 2
9	(a) How a socket is uniquely identified? (b)Explain address conversion functions	Understand	The learner will try to **recall** the various aerodynamic forces and then **explain** the various components of drag	CO 2
10	(a) What is socket abstraction? Explain. (b) Compare various socket address structures.	Understand	The learner will try to **recall** the meaning of socket abstraction and then **explain** various socket address structures.	CO 1

11	(a) What are the data types used in client-server programs? Explain. (b) What is the purpose of inet_addr and inet_pton functions? Explain.	Understand	The learner will try to **recall** the data types used in client-server programs and then **explain** the purpose of inet_addr and inet_pton functions	CO 1
12	Associate Littleendian and bigendian byte order for a 16bit integer.	Understand	The learner will try to **recall**the concept of byte ordering functions and then **explain** various programs to determine host by order	CO 1
13	Convert an IPv4 address from a dotted decimal string to its 32 bit network byte ordered binary value.	Understand	The learner will try to **recall** the functions: inetaton, inetaddr and inetntoa.	CO 1
14	Summerize diffeent address conversion functions.	Understand	The learner will try to **recall** diffeent address conversion functions	CO 1
15	Label Various data types that are commonly used in socket address structures? Explain.	Understand	The learner will try to **recall** the oVarious data types that are commonly used and then **explain** in detail	CO 1
16	Express the typical scenario that takes place between client and server shows a time line.	Understand	The learner will try to **recall** the typical scenario that takes place between client and server and then **explain** it with a neat diagram.	CO 1
17	Enumerate different type of errors in TCP socket, the connect() function initiates TCP's three way handshake.	Understand	The learner will try to **recall** different types of errors in TCP socket.	CO 1
18	List out the main uses of fork function and explain.	Understand	The learner will try to **recall** the operation principle of missile and then **explain** various guided missiles	CO 1
19	Rephrase the connection scene in case of concurrent server and with the status of client server after parent and child close appropriate socket	Understand	The learner will try to **recall** the connection scene in case of concurrent server	CO 1

20	Demonstrate and briefly explain the state transition diagram of TCP.	Understand	The learner will try to **recall** different operations in Transmission control protocol.	CO 1
PART-C SHORT ANSWER QUESTIONS				
1	Draw Internet Protocol suit.	Understand	The learner will try to **recall** Internet Protocol suit.	CO 2
2	Illustrate concurrent servers?	Remember	The learner will try to **recall** the different types of elementary socket functions	CO 1
3	Quote different address conversion functions explain?	Remember	The learner will try to **recall** the different address conversion functions	CO 2
4	What are the three types of socket function?	Remember	The learner will try to **recall**the three types of socket functions	CO 2
5	Explain iterative server.	Understand	The learner will try to recall various iterative server functions.	CO 1
6	Define server? What are the types of server?	Understand	The learner will try to recall the meaning of servers	CO 2
7	Write a program to print its own process ID.	Remember	The learner will try to **explain** the program to print its own process ID.	CO 2
8	Write a program to print the process ID of parent and child	Remember	The learner will try to **explain** program to print the process ID of parent and child	CO 2
9	Differentiate between IPv4 and IPv6 address system	Remember	The learner will try to **recall** the difference between IPv4 and IPv6 address system	CO 2
10	Briefly describe Port numbers and its categories.	Remember	The learner will try to **recall** the different Port numbers and its categories	CO 1
11	Illustrate how accept function works. ?	Remember	The learner will try to **recall** the working of accept function.	CO 1
12	Draw the figure that depicts the two queues (SYN_RECD, ESTABLISHED) for a given listening socket.	Understand	The learner will try to **recall** the two queues (SYN_RECD, ESTABLISHED) for a given listening socket.	CO 1

13	List out the three functionsthe can pass a socket address structure from the process to the kernal.	Remember	The learner will try to **recall** the three functions that can pass a socket address structure from the process to the kernal.	CO 1
14	Write a brief note on Generic Socket Address Structure	Remember	The learner will try to **recall** ththe concept of Generic Socket Address Structure.	CO 1
15	Indicate the structure of IPv6 socket address structure using sockaddr_in6.	Remember	The learner will try to **recall** the concept of IPv6 socket address structure.	CO 1
16	Label the three fields divided in sin6_flowinfo member.	Remember	The learner will try to **recall** the three fields divided in sin6_flowinfo member.	CO 1
17	Rephrase the structure In case the length is passed as pointer to an integer containing the size of structure.	Remember	The learner will try to **recall** the length is passed as pointer to an integer containing the size of structure.	CO 1
18	Draw a diagram that a socket address structure passing from kernel to process.	Remember	The learner will try to **recall** the process of socket address structure passing from kernel to process.	CO 1
19	Demonstrate socket address structure passing from process to kernel	Remember	The learner will try to **recall** the process of socket address structure passing from processto kernel.	CO 1
20	State the First Berkeley derived functions.	Remember	The learner will try to **recall** First Berkeley derived functions.	CO 1
MODULE II				
APPLICATION DEVELOPMENT				
PART-A PROBLEM SOLVING AND CRITICAL THINKING QUESTIONS				
1	Demonstrate a c program on TCP echo server	Understand	The learner will try to **recall** the concept of TCP echo server	CO 2
2	Illustrate the TCP echo client program.	Understand	The learner will try to **recall** concept of TCP echo client	CO 2

3	Rephrase the use of str_cli function in client server loop.	Understand	The learner will try to **recall** the concept of client server loop.	CO 2
4	State signals and label the conditions can generate a signal(1) and posix signal handling.	Understand	The learner will try to **recall** the function of solid rocket motor and then **explain** various motor configuration in SRM	CO 2
5	Recognize signal function that calls the posix sigaction function.	Understand	The learner will try to **explain** signal function that calls the posix sigaction function.	CO 2
6	**Enumerate** Posix Signal semantics.	Understand	The learner will try to **recall** the concept of iPosix Signal semantics	CO 3
7	Express the version of SIGCHILD signal handler that calls wait.	Understand	The learner will try to **recall** version of SIGCHILD signal handler that calls wait.	CO 2
8	Elucidate the significance Interrupted System Calls in application protocol and handling the Interrupted System Calls.	Understand	The learner will try to **recall** the significance Interrupted System Calls in application protocol and handling the Interrupted System Calls.	CO 2
9	Explain in detail about i) POSIX signal handling ii) Boundary conduction	Understand	The learner will try to **recall** POSIX signal handling and then **explain** Boundary conduction	CO 2
10	State the Difference between wait and waitpid in application protocol.	Understand	The learner will try to **recall** the propellants of SRM and then **explain** its characteristics	CO 2
PART-B LONG ANSWER QUESTIONS				
1	Express in detail about Termination of Server Process	Understand	The learner will try to **recall** Termination of Server Process	CO 2
2	Summerize the Crashing of Server Host in application server.	Understand	The learner will try to **recall**Crashing of Server Host application server	CO 3

3	Write a socket program to implement TCP echo client /server application?	Understand	The learner will try to **recall** the definition of grain and then **explain** with graph of thrust or pressure vs time	CO 2
4	Explain the concept of posix signal handling?	Understand	The learner will try to **recall** the function of nozzle and then **explain** different nozzles that used in SRM	CO 2
5	Write a socket program to implement TCP echo client /server application with multiplexing?	Understand	The learner will try to **recall** the concept of ignition system in a solid rocket motor and then **explain** its classification w.r.t pyrogen and pyrotechnic igniter	CO 2
6	Show the scenario of I / O Multiplexing Model	Understand	The learner will try to **recall** the concept of I / O Multiplexing Model	CO 2
7	2. Explain the following concept with suitable example i) Shutdown function ii) Server host crashes iii) Input output models iv) POSIX signal	Understand	The learner will try to **recall** the classification of solid rocket motor w.r.t grain installation and then **explain** case bonded and cartridge loaded grains	CO 2
8	. Discuss the following scenario of server operations i) Crashing of server host ii) Crashing and rebooting of server host iii) Shutdown of server host	Understand	The learner will try to **recall** the classification of solid rocket motor w.r.t propellants and then **explain** double base and composite propellant	CO 3
9	Explain in detail about the various I/O models in Unix operating system	Understand	The learner will try to **recall** the working principle of solid rocket motor and then **explain** the combustion process in solid rocket motor	CO 2
10	Express in detail about i) POSIX signal handling ii) Boundary conduction	Understand	The learner will try to **recall** POSIX signal handling and Boundary conductions	CO 2

11	Associate the scenario using server program that handling the Interrupted System Calls.	Understand	The learner will try to **recall** the server program that handling the Interrupted System Calls:	CO 2
12	Elaborate TCP / IP client that makes the difference between wait and waitpid.	Understand	The learner will try to **recall** the concepts of wait and waitpid	CO 2
13	Infer in detail about the Termination of Server Process	Understand	The learner will try to **recall** the concept of Termination of Server Process	CO 2
14	Summerize in detail about the Termination of Server Process	Understand	The learner will try to **recall** the Termination of Server Process	CO 2
15	Enumerate the networking applications in I/O multiplexing.	Understand	The learner will try to **recall** the concept of I/O multiplexing.	CO 2
16	Compare the blocking and nonblocking I/O multiplexing with a neat diagram.	Understand	The learner will try to **recall** POSIX signal handling and Boundary conductions	CO 2
17	Show the scenario of I / O Multiplexing Model	Understand	The learner will try to **recall** the concept of I / O Multiplexing Model	CO 2
18	Demonstrate the concept of Signal Driven I/O Model	Understand	The learner will try to **recall** the concept of Signal Driven I/O Model	CO 2
19	Tabulate the comparision of the I/O ModelU	Understand	The learner will try to **recall** I/O Model	CO 2
20	Express the code gives the str_cli function that is modified by using shutdown function.	Understand	The learner will try to **recall** POSIX signal handling and Boundary conductions	CO 2
PART-C SHORT ANSWER QUESTIONS				
1	State posix?	Remember	The learner will try to **recall** POSIX signal handling and Boundary conductions	CO 3
2	Define signal?	Remember	The learner will try to **recall** POSIX signal handling and Boundary conductions	CO 2

3	Mention the ways to send a signal?	Remember	The learner will try to **recall** POSIX signal handling and Boundary conductions	CO 3
4	Define Disposition?	Remember	The learner will try to **recall** the concept of disposition.	CO 2
5	What are the three choices for disposition?	Remember	The learner will try to **recall** disposition	CO 2
6	Specify general format for signal function?	Remember	The learner will try to **recall** the general format for signal function	CO 2
7	What is Handling SIGCHLD signal?	Remember	The learner will try to **recall** the concept of SIGCHLD signal	CO 2
8	What is slow system call	Remember	The learner will try to **recall** the concept of SIGCHLD signal	CO 2
9	What is meant by wait?	Remember	The learner will try to **recall** the definition of wait	CO 2
10	What is meant by waitpid?	Understand	The learner will try to **recall** the concept of waitpid	CO 2
11	Draw Simple Echo client server?	Understand	The learner will try to **recall** the concept of Simple Echo client server	CO 2
12	Illustrate the use of readline in str_echo function on a socket?	Understand	The learner will try to **recall** the concept of Simple Echo client server	CO 2
13	Evaluate the TCP Echo Client using str_cli function.	Understand	The learner will try to **recall** the concept of Simple Echo client server	CO 2
14	Enumerate the three choices for the disposition in posix signal handling	Understand	The learner will try to **recall** the concept of disposition	CO 2
15	Define signal Function using Posix sigaction	Understand	The learner will try to **recall** the concept of signal Function using Posix sigaction	CO 2
16	Express Handling SIGCHLD signals.	Understand	The learner will try to **recall** the concept of Handling SIGCHLD signals	CO 2

17	Infer Zombie in Signal(SIGCHLD, sig_chld) using sourse code.	Understand	The learner will try to **recall** the concept of zombie in Simple Echo client server	CO 2
18	Write the syntax for wait	Understand	The learner will try to **recall** the concept of wait	CO 2
19	Demonstrate a short note on waitpid.	Understand	The learner will try to **recall** the concept of Swaitpid	CO 2
20	Illustrate the use of tcpdump in termination of Server Process.	Understand	The learner will try to **recall** the concept of Termination of Server Process	CO 2
MODULE III				
SOCKET OPTIONS, ELEMENTARY UDP SOCKETS				
PART A-PROBLEM SOLVING AND CRITICAL THINKING QUESTIONS				
1	Write a brief on RES_USE_INET6 resolver option in gethostbyname and gethostbyname2 functions.	Understand	The learner will try to **recall** the concept of gethostbyname and gethostbyname2	CO 3
2	Discuss any four TCP socket option in detail.	Understand	The learner will try to **recall**the concept of TCP socket option	CO 3
3	Demonstrate the method to find out if the given option is supported and if so to print the default value	Understand	The learner will try to **recall** various propellants and then **explain** advantages and disadvantages	CO 3
4	Elucidate SocketLevel Options that are defined in the header file sys/socket.h.	Understand	The learner will try to **recall** the header file sys/socket.h.	CO 3
5	Summerize SO_LINGER Socket option that are Calling setsocket leads to one of the folowing three scenarios depending on the values of the two structure memebrs.	Apply	The learner will try to **recall** the working of SO_LINGER Socket option in Calling setsocket.	CO 3
6	Express the level of this options are IPPROTO_IP.	Understand	The learner will try to **recall** the working principle of solid rocket motor and liquid rocket engine and **explain** the differences between them	CO 3

7	Interpret the following TCP_NODELAY Socket Option	Understand	The learner will try to **recall** the concept of sockets.	CO 3
8	Illustrate the TCP and UDP Echo Server using Select () with an example.	Understand	The learner will try to **recall** the working TCP and UDP Echo Server using Select function.	CO 3
9	Create listening TCP socket with the help of handling arrival of datagram.	Understand	The learner will try to **recall** to Create listening TCP socket with the help of handling arrival of datagram.	CO 8
10	Write a program that checks all the socket option of a socket and sets the value for receiver buffer size to 520 bytes	Understand	The learner will try to **recall** the concept of Sockets	CO 3
PART-B LONG ANSWER QUESTIONS				
1	Briefly discuss about DNS with an example	Understand	The learner will try to **recall** working of a liquid rocket engine and then **explain** various components of LRE with a neat sketches	CO 3
2	Illustrate the concept about TCP Echo server and client	Understand	The learner will try to **recall** propellant that are used in liquid rocket engine and then **explain**s the cryogenic propellant and the temperature at which it is stored	CO 3
3	Demonstrate the concept of UDP Echo server and client	Understand	The learner will try to **recall** propellant various fuels and oxidizers that are used for LRE and then **explain** its characteristics	CO 3
4	Interpret the purpose and usage of UDP sockets and their different functions	Understand	The learner will try to **recall** the concept of UDP sockets	CO 3
5	Elucidate RES_USE_INET6 Resolver Option in socket options.	Understand	The learner will try to **recall** the concept of RES_USE_INET6 Resolver Option and then **explain** socket options.	CO 3

6	Summarize the functions for examining and modifying socket options	Understand	The learner will try to **recall** the concepts of functions for examining and modifying socket options.	CO 3
7	List out the options that are used to pass a value of the specified datatype between user process and the system.	understand	The learner will try to **recall** the the options that are used to pass a value of the specified datatype between user process and the system..	CO 3
8	Assume both a client and server set the SO_KEEPALIVE socket option and the connectivity is maintained between the peers but them is no exchange of data. When the keepalive timer expires every 2 hours, how many TCP segments are exchanged across the connection? justify your answer with an illustration	Understand	The learner will try to **recall** the concept of socket options.	CO 3
9	Write a c program that checks all the socket option of a socket and sets the value for receiver buffer size to 520 bytes.	Understand	The learner will try to **recall** the concept of socket options	CO 3
10	Write notes on RES_USE_INET6 resolver option in gethostbyname and gethostbyname2 functions.	Understand	The learner will try to **recall** the concept of RES_USE_INET6 resolver option in gethostbyname and gethostbyname2 functions.	CO 3
11	Write a brief note on socket options and their functions.	Understand	The learner will try to **recall** the socket options and their functions	CO 3
12	Discuss about IP? socket options and ICMP socket options	Understand	The learner will try to **recall** socket options and ICMP socket options	CO 3
13	Illustrate socket options and ICMP socket options	Understand	The learner will try to **recall** the propellants of LRE and then **explain** various resolver options.	CO 3

14	Enumerate generic socket options and their functions.	Understand	The learner will try to **recall** the conepts of generic socket options	CO 3
15	Draw a neat sketch by assuming that the client writes data to the socket and then calls close.	Understand	The learner will try to **recall** the concept of socket options.	CO 3
16	List out socket-level option names and explain each of them.	Understand	The learner will try to **recall** the propellants of LRE and then **explain** various resolver options.	CO 3
17	Associate TCP_NODELAY Socket Option and explain it with a neat diagram.	Understand	The learner will try to **recall** the conept of TCP_NODELAY Socket Option	CO 3
18	Interpret fcntrl Function and enumerate their features.	Understand	The learner will try to **recall** the the fcntrl function	CO 4
19	Write notes on RES_USE_INET6 resolver option in gethostbyname2 functions.	Understand	The learner will try to **recall** the concept of socket options.	CO 3
20	show the main server program in UDP Echo Server	Understand	The learner will try to **recall** the concept of UDP Echo Server.	CO 3
PART-C SHORT ANSWER QUESTIONS				
1	What are various ways to get and set the options that affect a socket?	Remember	The learner will try to **recall** the various ways to get and set the options that affect a socket.	CO 3
2	Illustrate Elementary UDP sockets.	Remember	The learner will try to **explain** various Elementary UDP sockets.	CO 3
3	Label the two functions used in Elementary UDP	Remember	The learner will try to **recall** the two functions used in Elementary UDP.	CO 3
4	Difference between main function and dg_echo function and SOCK_DGRAM	Remember	The learner will try to **recall** the concepts of dg_echo function and SOCK_DGRAM.	CO 3
5	What are the four steps used in client processing loop.	Remember	The learner will try to **explain** various four steps used in client processing loop.	CO 3

6	Difference between server function dg_echo and client function dg_cli.	Remember	The learner will try to **recall** the concepts of function dg_echo and client function dg_cli.	CO 4
7	Define DNS	Remember	The learner will try to **recall** the concepts of DNS.	CO 4
8	Explain Gethostbyname function	Remember	The learner will try to **explain** the Gethostbyname function .	CO 4
9	State the role of pointer queries in DNS	Remember	The learner will try to **explain** the role of pointer queries in DNS.	CO 4
10	What are the three ways to set RES_USE_INET6?	Remember	The learner will try to **explain** the he three ways to set RES_USE_INET6.	CO 4
11	Define Gethostbyname (host)	Remember	The learner will try to **explain** the Gethostbyname(host) function .	CO 4
12	Express the use of Gethostbyname2 (host, AF_INET)	Remember	The learner will try to **explain** the Gethostbyname(host, AF_INET) function .	CO 4
13	Illustrate the advantage of Gethostbyname2 (host, AF_INET6)	Remember	The learner will try to **explain** the Gethostbyname function(host, AF_INET6) .	CO 4
14	Demonstrate the operation of gethostbyname 2	Remember	The learner will try to **explain** the Gethostbyname 2 function .	CO 4
15	Associate Recvfrom and sendto functions	Remember	The learner will try to **explain** the Gethostbyname function using Recvfrom and sendto functions .	CO 4
16	Develop a server program in UDP sockets.	Remember	The learner will try to **explain** the server program in UDP sockets.	CO 4
17	Express the function call of UDP client and server using a diagram.	Remember	The learner will try to **explain** the the function call of UDP client and server using a diagram.	CO 4
18	Explain IPv4 socket option.	Remember	The learner will try to **explain** the IPv4 socket option.	CO 4

19	Explain ICMPv4 socket option.	Remember	The learner will try to **explain** the ICMPv4 socket option .	CO 4
20	Explain IPv6 socket option	Remember	The learner will try to **explain** the IPv6 socket option.	CO 4
MODULE IV				
ADVANCED SOCKETS				
PART A- PROBLEM SOLVING AND CRITICAL THINKING QUESTIONS				
1	Elucidate briefly how IPv4 and IPv6 running concurrently	Understand	The learner will try to **recall** RCS and payload fraction and **explain**s its importance and application of RCS	CO 4
2	Describe the system when the client is either IPv4 or IPv6	Understand	The learner will try to **recall** the onepts of IPv4 and IPv6	CO 4
3	List out the steps that allow an IPv4 TCP client to communicate with an IPv6 server	Understand	The learner will try to **recall** the importance of IPv4 TCP clientand then **explain** the concept of IPv6 servers	CO 4
4	State threads and list out the functions of threads and explain them.	Understand	The learner will try to **recall** the concept threads and **explain** the functions of threads.	CO 4
5	Illustrate raw sockets and determine the creation of raw sockets.	Understand	The learner will try to **recall** the concept raw sockets and then **explain** the creation of raw sockets.	CO 4
6	Enumerate the rules that the output of raw sockets are governed.	Understand	The learner will try to **recall** the importance rules that the output of raw sockets are governed.	CO 4
7	Determine the concept of Raw Socket Input and define the three tests, when kernal has to pass IP datagram.	Understand	The learner will try to **recall** the concept of raw socketsand then **explain**s the three tests, when kernal has to pass IP datagram.	CO 4
8	Explain the implementations of threads.	Understand	The learner will try to **recall** the concept of threads and then **explain** its implementation.	CO 4

9	What are the basic functions of thread creation and termination?	Understand	The learner will try to **recall** the concept of threads and then **explain**s the its functionality.	CO 4
10	Illustrate the use of ICMPv6 Type Filtering	Understand	The learner will try to **explain** the use of ICMPv6 Type Filtering	CO 4
PART-B LONG ANSWER QUESTIONS				
1	Demonstrate the trace route program with sample code and example	Understand	The learner will try to **recall** the concept of trace route program.	CO 4
2	Differentiate in detail IPv4 and IPv6 interoperability	Understand	The learner will try to **recall** the concept of wing aerodynamics and then **explain** the concept of IPv4 and IPv6 interoperability	CO 3
3	Write a program that uses threads and raw sockets for cheacking the connectivity of a remote mahine.	Understand	The learner will try to **recall** the concept of guidance systems in rocket and missiles and **explain** the purpose of using the guidance system	CO 4
4	List out the following socket options inherited by a connect tcp socket from the listening socket and explain them?	Understand	The learner will try to **recall** the concept of socket options	CO 4
5	Enumerate the advantages and disadvantages of threads?	Remember	The learner will try to **recall** the concept of threads	CO 4
6	What are the basic function of thread creation and termination?	understand	The learner will try to **recall** the concept of thread creation and termination.	CO 4
7	List out the unique values maintained by a thread.	Remember	The learner will try to **recall** the concept of unique values maintained by a thread.	CO 4
8	Infer are the common thread interfaces?	Understand	The learner will try to **recall** the concept of thread interfaces.	CO 3
9	Explain thread function.	Remember	The learner will try to **recall** the concept of thread functions..	CO 5

10	State multithreading	Understand	The learner will try to **recall** the concept of multithreading	CO 5
11	Mention the purpose of ping program.	Understand	The learner will try to **recall** the concept of ping program	CO 5
12	Illustrate traceroute program	Understand	The learner will try to **recall** the concept of multithreading	CO 5
13	Define mutexes	Understand	The learner will try to **recall** the concept of mutexes	CO 5
14	Demonstrate basic thread functions.	Understand	The learner will try to **recall** the concept of basic thread functions	CO 5
15	State raw sockets and explain their functionality in detail.	Understand	The learner will try to **recall** the concept of raw sockets	CO 5
16	Express IPv6 checksum option	Understand	The learner will try to **recall** the concept of IPv6 checksum option	CO 5
17	Differentiate ping and traceroute program.	Understand	The learner will try to **recall** the concept of ping and traceroute program	CO 5
18	Write a 'C' program that can generate an ICMPv4 echo request packet and process the received ICMPv4 echo reply.	Understand	The learner will try to **recall** the concept of ICMPv4 echo request packet and process the received ICMPv4 echo reply.	CO 5
19	Write short notes on mutexes and condition variables.	Understand	The learner will try to **recall** the concept of mutexes	CO 5
20	Express thread creation and thread termination with suitable example.	Understand	The learner will try to **recall** the concept of threads	CO 5
PART-C SHORT ANSWER QUESTIONS				
1	Illustrate the features of IPv4.	Remember	The learner will try to **recall** the concept of IPv4 and its features.	CO 5
2	Enumerate the features of IPv6.	Remember	The learner will try to **recall** the concept of IPv6 and its features.	CO 5

3	Interpret IPv4 and IPv6 server.	Remember	The learner will try to **recall** the concept of IPv4 and IPv6 server.	CO 5
4	Explain the implementations of threads.	Remember	The learner will try to **recall** the concept of threads.	CO 5
5	Define is dual stack?	Remember	The learner will try to **recall** the concept of threads	CO 5
6	Enumerate the use of IPV6 address testing macros??	understand	The learner will try to **recall** the concept of thread creation and termination.	CO 5
7	Interpret the need of IN6_IS_ADDR_V4MAPPED macro?	Remember	The learner will try to **recall** the concept of unique values maintained by a thread.	CO 5
8	Infer are the common thread interfaces?	Understand	The learner will try to **recall** the concept of thread interfaces.	CO 5
9	What is IPV6_ADDRFORM socket option?	Remember	The learner will try to **recall** the concept of socket options .	CO 5
10	Why thread is called light weight processes?	Understand	The learner will try to **recall** the concept of multithreading	CO 5
11	Mention the purpose of Pthread?	Understand	The learner will try to **recall** the concept of pthread.	CO 5
12	How is a thread created?	Understand	The learner will try to **recall** the concept of treads	CO 5
13	Demonstrate how thread terminated?	Understand	The learner will try to **recall** the concept of thread terminated.	CO 5
14	Demonstrate basic thread functions.	Understand	The learner will try to **recall** the concept of basic thread functions	CO 5
15	State raw sockets	Understand	The learner will try to **recall** the concept of raw sockets	CO 5
16	Express IPv6 checksum option	Understand	The learner will try to **recall** the concept of IPv6 checksum option	CO 5

17	What is a common technique for making the function thread safe.	Understand	The learner will try to **recall** the concept of ping and traceroute program	CO 5
18	Why is a mutex always associated with a condition available?.	Understand	The learner will try to **recall** the concept of ICMPv4 echo request packet .	CO 5
19	Establish signal handler for SIGALRM?	Understand	The learner will try to **recall** the concept of sockets.	CO 5
20	Express the function of PING (packet internet grosper)?	Understand	The learner will try to **recall** the concept of threads	CO 5
MODULE V				
SIMPLE NETWORK MANAGEMENT				
PART A-PROBLEM SOLVING AND CRITICAL THINKING QUESTIONS)				
1	Enumerate the Network Management Requirements.	Understand	—	CO 6
2	State Network Management System and Network Management Configuration	Understand	The learner will try to **recall** Network Management System and then **explain** Network Management Configuration	CO 6
3	Briefly illustrate about Network Management Software Architecture	Understand	The learner will try to summarize Network Management Software Architecture	CO 6
4	Construct the Network Management Protocol Architecture	Understand	The learner will try to **recall** the classification of solid rocket motor and then **explain** various loads acting on it.	CO 6
5	Interpret the SNMP relies on UDP	Apply	The learner will try to **recall** SNMP relies on UDP	CO 6
6	Identify the process of management stations sends queries concerning a device to its proxy agent	Understand	The learner will try to **recall** management stations sends queries concerning a device to its proxy agent	CO 5
7	Demonstrate the architecture of SNMPV3 with neat diagram.	Understand	The learner will try to summarize the architecture of SNMPV3.	CO 5

8	i) Compare SNMPV2 and SNMPV3, ii) Discuss about MIB, iii) Write note on RMON	Understand	The learner will try to summarize the architecture of SNMPV2 and SNMPV3.	CO 5
9	Illustrate the architecture of SNMP entity and traditional SNMP manager as specified in RFC 2271	Understand	The learner will try to summarize the architecture of SNMPV3.	CO 5
10	Demonstrate the architecture of SNMPV3 with neat diagram.	Understand	The learner will try to summarize the architecture of SNMPV3.	CO 5
PART-B LONG ANSWER QUESTIONS				
1	Draw the diagram that depicts the configuration using RMON.	Understand	The learner will try to **recall** the concept of RMON.	CO 6
2	State RMON MIB and list out the groups divided in it.	Understand	The learner will try to **recall** the concept of RMON MIB.	CO 6
3	Summerize a brief note on SNMP v2 MANAGEMENT INFORMATION	Understand	The learner will try to **recall** the concept of SNMP v2 MANAGEMENT INFORMATION .	CO 6
4	Demonstrate the EXAMPLE OF A MESSAGE DEFINITION SPECIFIED WITH ASN.1 NOTATION	Understand	The learner will try to **recall** EXAMPLE OF A MESSAGE DEFINITION SPECIFIED WITH ASN.1 NOTATION	CO 6
5	Summerize Network management requirements.	Understand	The learner will try to **recall** materials for combustion chamber and **explain** the materials used in combustion chamber along with its properties	CO 6
6	Write a brief note on Network Management Configuration with a neat diagram.	Understand	The learner will try to **recall** materials for various rocket components and then **explain** the properties of these materials	CO 6
7	Demonstrate the use of Network Management Software Architecture in network programming.	Understand	The learner will try to **recall** the importance and the need of rocket testing	CO 6

8	Describe about RMON MIB and enumerate the groups divided in it.	Understand	The learner will try to **recall** materials used in aerospace and then **explain** the performance parameters and its selection criteria.	CO 6
9	Explicit the goals of REMOTE NETWORK MONITORING(R M O N) in detail.	Understand	The learner will try to **recall** various safety precautions for the modern test facility of rocket engines	CO 6
10	Demonstrate SNMPv1 protocol and practical issues involved in it.	Understand	The learner will try to **recall** the concept of SNMPv1 protocol and practical issues	CO 6
11	List out the data types in UNIVERSAL class of ASN.1 for SNMP MIB	Understand	The learner will try to **recall**the conept of data types in UNIVERSAL class of ASN.1 for SNMP MIB	CO 6
12	Illustrate the syntax of the various SNMPv1 message formats	Understand	The learner will try to **recall** the concept of syntax of the various SNMPv1 message formats	CO 6
13	Demonstrate the architecture of SNMP entity and traditional SNMP manager, as specified in RFC2271	Understand	The learner will try to **recall** the concept of SNMP entity and traditional SNMP manager, as specified in RFC2271	CO 6
14	Interpret the architecture of SNMPV3 with neat diagram.	Understand	The learner will try to **recall** the the concept of the architecture of SNMPV3 with neat diagram.	CO 6
15	Summerize the implementation of MIB II object grouping	Understand	The learner will try to **recall** the concept of MIB II object grouping	CO 6
16	Describe SIMPLE NETWORK MANAGEMENT PROTOCOL and mention general purpose operations in SNMP.	Understand	The learner will try to **recall** the concept of simple network management protocol.	CO 6
17	Discuss the role of authentication service in case of SNMP messages.	Understand	The learner will try to **recall** the concept of SNMP.	CO 6

18	Enumerate the five types of protocol data units in protocol specification	Understand	The learner will try to **recall** the concept of network programming	CO 6
19	Demonstrate the architecture of SNMPV3 with neat diagram.	Understand	The learner will try to **recall** concept SNMPV3.	CO 6
20	Evaluate the steps involved in Transmission of an SNMP message	Understand	The learner will try to **recall** Transmission of an SNMP	CO 6
PART-C SHORT ANSWER QUESTIONS				
1	Define SNMP.	Remember	The learner will try to **recall** the concept of SNMP	CO 6
2	Define network management system.	Remember	The learner will try to **recall** the concept of network management system	CO 6
3	Is SMNP uses TCP Justify.	Remember	The learner will try to **recall** the concept of SNMP	CO 6
4	Name the key elements of network management.	Remember	The learner will try to **recall** the concept of SNMP	CO 6
5	Define management agent.	Remember	The learner will try to **recall** the concept of management agent.	CO 6
6	State management information base.	Remember	The learner will try to **recall** the concept of management agent.	CO 6
7	Illustrate the structure of management information.	Understand	The learner will try to **recall** the struture of management information.	CO 6
8	What is get request PDU?	Remember	The learner will try to **recall** the struture of management information.	CO 6
9	List out the limitations of using SNMP?	Understand	The learner will try to **recall** the the concept of SNMP	CO 6
10	What are the types of Threats?	Understand	The learner will try to **recall** the concept of threads	CO 6
11	Name the network monitoring information.?	Understand	The learner will try to **recall** the concept of network management protocols.	CO 6

12	What are the key capabilities of SNMP?	Understand	The learner will try to **recall** the concept of network management protocols.	CO 6
13	State the features of SNMPV3.	Understand	The learner will try to **recall** the concept of SNMPV3.	CO 6
14	Demonstrate Management Information Base	Understand	The learner will try to **recall** the concept of network management protocols.	CO 6
15	List out the key capabilities of Network Management Protocol	Understand	The learner will try to **recall** the concept of network management protocols.	CO 6
16	Enumerate the objectives of MIB?	Understand	The learner will try to **recall** the concept of MIB?	CO 6
17	What are the contents of MIB structures?	Understand	The learner will try to **recall** the concept of network management protocols.	CO 6
18	Summerize the concept of Trap Directed Polling	Understand	The learner will try to **recall** the concept of network management protocols.	CO 6
19	Express the use of ipgroup?	Understand	The learner will try to **recall** the concept of ipgroup	CO 6
20	Memorize the purpose of Proxies.	Understand	The learner will try to **recall** the concept of proxies.	CO 6

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