Reg. No.															

Question Paper Code	13513

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2025

Sixth Semester

Information Technology

20ITEL604 - NETWORK PROGRAMMING PROTOCOLS AND STANDARDS

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Which of the following is NOT a layer in the TCP/IP model? (a) Transport (b) Network (c) Session (d) Application	1	K1	CO1
2.	Which of the following socket types is used for UDP communication? (a) SOCK_STREAM (b) SOCK_DGRAM (c) SOCK_RAW (d) SOCK_SEQPACKET	1	K1	CO1
3.	Which function converts an IP address from string to binary format? (a) inet_pton() (b) inet_ntop() (c) gethostbyname() (d) getaddrinfo()	1	K1	CO2
4.	Which function allows a TCP server to handle multiple clients using I/O multiplexing? (a) fork() (b) pthread_create() (c) select() (d) socket()	1	K1	CO2
5.	Which function is used to retrieve the current state of a socket option? (a) getpeername() (b) getsockopt() (c) select() (d) listen()	1	K1	CO3
6.	Which transport layer protocol provides multi-streaming support? (a) TCP (b) UDP (c) SCTP (d) ICMP	1	K1	CO3
7.	Which technique allows IPv6 packets to be transmitted over an IPv4 network? (a)NAT (b) Tunneling (c) VLAN (d) Subnetting	1	K1	CO4
8.	What does the ping command measure? (a) Packet loss (b) Round-trip time (RTT) (c) TCP handshake time (d) IP routing efficiency	1	K1	CO4
9.	What notation is used to define MIB objects? (a) XML (b) ASN.1 (c) JSON (d) YAML	1	K1	CO5
10.	What key enhancement in SNMPv2 improves error reporting? (a) Community Strings (b) Timers (c) Standardized Error Codes (d) Inform Requests	1	K1	CO6

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

11.	How does the TCP three-way handshake work?	2	K2	CO1
12.	What is the purpose of the bind() function in socket programming?	2	K1	CO1
13.	Write the differences between a concurrent and an iterative server?	2	K2	CO2
14.	What happens if a TCP server crashes while clients are connected?	2	K2	CO2
15.	Why is TCP_NODELAY used in TCP sockets?	2	K2	CO3
16.	What is the role of the IP_TTL socket option?	2	K1	CO3
17.	What is the purpose of a mutex in multithreading?	2	K1	CO4
18.	Differentiate pthread_create() and fork() in terms of process and thread creation.	2	K2	CO4
19.	Differentiate between SNMP Manager and SNMP Agent.	2	K2	CO5
20.	Mention the different SNMPv1 operations.	2	K1	CO5

21.		What is the role of the GetBulkRequest PDU in SNMPv2?	*2*	*K1*	*CO6*
22.		What does RMON stand for? Why is it used?	*2*	*K2*	*CO6*

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a)	Compare and contrast the OSI model and the TCP/IP model.	*11*	*K2*	*CO1*
		OR			
	b)	Explain in detail about the Elementary TCP sockets with neat diagram.	*11*	*K2*	*CO1*
24.	a)	Explain in detail about the various Address conversion functions with neat syntax.	*11*	*K2*	*CO2*
		OR			
	b)	Discuss about the following scenarios of server operations			
		(i) Crashing of Server Host	*6*	*K2*	*CO2*
		(ii) Crashing and Rebooting of Server Host	*5*	*K2*	*CO2*
25.	a)	Discuss the different types of Generic Socket Options with suitable example?	*11*	*K2*	*CO3*
		OR			
	b)	Briefly discuss about working of DNS. Write a simple DNS program with an example.	*11*	*K2*	*CO3*
26.	a)	Analyze and explain the various interoperability mechanisms for IPv4 and IPv6.	*11*	*K4*	*CO4*
		OR			
	b)	Compare and contrast the working of the Ping and Trace route programs.	*11*	*K4*	*CO4*
27.	a)	Examine the SNMP architecture with a neat diagram. Describe the roles of SNMP Manager, SNMP Agent, and Managed Devices.	*11*	*K3*	*CO5*
		OR			
	b)	A network administrator wants to monitor the CPU utilization of all routers in an enterprise network. Which MIB-II object should be used? Explain how SNMP can be configured to achieve this.	*11*	*K3*	*CO5*
28.	a)	Interpret the protocol architecture of SNMPv2. How does it improve over SNMPv1 in terms of message exchange and operations?	*11*	*K3*	*CO6*
		OR			
	b)	Discuss the message-processing model of SNMPv3. How is security parameters incorporated during message exchange?	*11*	*K3*	*CO6*