ROLLNO.....

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SCHOOL OF ENGINEERING SCIENCES & TECHNOLOGY
JAMIAHAMDARD

End Semester Examination -2023

PAPER: COMPUTER NETWORKS
TIME: 3 HRS

PAPER CODE: BTCSE 603/BTCSE AI 603
MAXIMUM MARKS: 75

Note: Do not write anything on paper except Roll No.

COURSE OUTCOME (CO)

CO-1: Understand the concepts of data communication and networks,TCP/IP and OSI reference models.
CO-2: Analyze, specify and design the topological and routing strategies for an IP based networking infrastructure
CO-3: Demonstrate the working of existing protocols and identify deficiencies in existing protocols, and formulate new and better protocols.
CO-4: Develop network programming for a given problem.
CO-5:Configure DNS DDNS, TELNET, EMAIL, File Transfer Protocol (FTP), WWW, HTTP, SNMP, Bluetooth, Firewalls using open source available software and tools.

SECTION A

All questions of Section A are compulsory (7*5=35)

S.NO	QUESTIONS	MARKS	CO	BL
Q1.	Why is the size of the send window in Go back N ARQ less than $_2{}^m$, where 'm' is the size of the sequence number field in bits? Explain with the help of an example.	5	CO1	L3
Q2.	Explain why most of the addresses in class A are wasted. Also explain why a medium-size or large -size corporation does not want a block of class C addresses.	5	CO5	L1
Q3.	"CSMA eliminates the possibility of collision during data transmission." Comment on the statement. Justify your answer with an example.	5	CO2	L4
Q4.	The size of the option field of an IPv4 datagram is 20 bytes. What is the value of HLEN? What is the value in Binary?	5	CO2	L2
Q5.	"Slotted Aloha improves the efficiency of pure ALOHA". Justify the statement with a suitable example.	5	C03	L3
Q6.	The datagram and Virtual Circuit Networks require a routing/Switching table to find the output port from which the information belonging to a destination should be sent out, whereas a circuit Switched Network has no such requirements. Give reasons for this difference.	5	CO2	L1

Q7.	What is a URL and what are its components?	5	CO2	L 1

SECTION B

*Answer any 4 questions in Section B (4*10)*

S.NO	QUESTIONS	MARKS	CO	BL
Q1.	Assume that a 12-bit Hamming codeword consisting of 8-bit data and 4 check bits is d8d7d6d5c8d4d4d3d2c4d1c2c1, where the data bits and the check bits are given in the following tables: Data bits: d_8 d_7 d_6 d_5 d_4 d_3 d_2 d_1 = 1 1 0 x 0 1 0 1 Check bits: c_8 c_4 c_2 c_1 = y 0 1 0 Find the correct values of x and y?	10	CO3	L4
Q2.	(i) With respect to the ISO-OSI model, discuss the significance of a layered architecture. (ii) Explain the role of each layer of ISO-OSI model in data communication tasks.	10	CO4	L 1
Q3.	Discuss how TCP adds connection-oriented and reliability features to the services of IP.	10	CO3	L2
Q4.	Write short note on: a) DNS b) WWW c) HTTP d) FTP	10	CO2	L3
Q5.	An ISP is granted a block of addresses starting with 120.60.4.0/22. The ISP wants to distribute these blocks to 100 organizations with each organization receiving just 8 addresses. Design the subblocks and give the slash notation for each sub-block. Also find if any addresses are still available after this allocation.	10	CO5	L5
Q6.	Consider the cyclic redundancy check (CRC) based error detecting scheme having the generator polynomial X3+X+1. Suppose the message m4m3m2m1m0 = 11000 is to be transmitted. Check bits c2c1c0 are appended at the end of the message by the transmitter using the above CRC scheme. The transmitted bit string is denoted by m4m3m2m1m0c2c1c0. What is the value of the checkbit sequence c2c1c0. Hint: X3+X+1 can be written as 1011	10	CO3	L2

BLOOMS TAXANOMY LEVELS (BL)

1-REMEMBERING, 2-UNDERSTANDING, 3-APPLYING, 4-ANALYSING, 5-EVALUATING, 6-CREATING