



K. K. Wagh Institute of Engineering Education & Research, Nashik
(An Autonomous Institute From A.Y. 2022-23)

SUMMER-2024	
Exam Seat No.:	
Academic Year:2023-2024	Semester:IV
Class:SY B.Tech Computer Science and Design	Program:B.Tech
Branch Code:CSD	Pattern:2022
Name of Course:Computer Networks	Course Code:CSD222014
Max. Marks:60	Duration:2.30 Hrs.

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains __03__page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

Question No. 1 Attempt following Question

- 1 Explain various internetworking devices. State at which layer those devices works? (6) CO1

Question No. 2 Attempt following Question

- 2 Differentiate between IMAP, POP3 and SMTP protocol working in Electronic mail system. (6) CO2

Question No. 3 Attempt following Question

- 3.a) Explain TCP segment header Structure with suitable diagram. (6) CO3

OR

- 3.b) Explain the concept of a socket and the different socket primitives necessary for TCP socket programming on both the client and server sides. (6) CO3

- 3.c) Describe silly window syndrome problem. Suggest two solutions to overcome the problem (5) CO3

OR

- 3.d) Discuss QoS in computer networking? Explain QoS parameters. (5) CO3

- 3.e) Explain leaky bucket algorithm, which quality parameter is ensured by Leaky Bucket algorithm. (5) CO3

OR

- 3.f) Given a DUMP of a UDP header in hexadecimal format **05 32 00 0A 00 1D E2 17**. (5) CO3

Find the following: -

1. Source port number?
2. Destination port number?
3. Length of user datagram?
4. Length of the data?

Question No. 4 Attempt following Question

- 4.a) Explain IPv4 header format with a neat diagram. (6) CO4

OR

- 4.b) Illustrate the working of Address Resolution Protocol (ARP) and Reverse Address Resolution Protocol (RARP) with a neat diagram. (6) CO4

- 4.c) Compare link state and distance vector routing algorithm. (5) CO4

OR

- 4.d) A host was given the **192. 168.2.64 /25** IP address, indicate: (5) CO4

1. Net mask of the network in dotted decimal notation.
2. The network address to which the host belongs.
3. The network broadcast address to which the host belongs.
4. The total number of hosts available in the network

- 4.e) Explain Network Address Translation (NAT) process with suitable diagram (5) CO4

OR

- 4.f) Describe Border Gateway Protocol (BGP) in detail. (5) CO4

Question No. 5 Attempt following Question

- 5.a) Identify the services provided by the data link layer, what are the different framing methods, and illustrate one of them in detail (6) CO5

OR

- 5.b) Solve the following for the given (6) CO5

Data word : 1101011011 and

Generator polynomial $G(x) : x^4+x+1$.

Use Cyclic Redundancy Check (CRC) to compute the code word at sender side. Show the complete steps of division

- 5.c) Apply hamming code process to generate 11-bit hamming code for data **1011001** (Assume even Parity). (5) CO5

OR

5.d) Apply the operational principles of the Go Back N sliding window flow control protocol using a suitable example and accompanying diagram (5) CO5

5.e) Apply the operational procedures of pure ALOHA by demonstrating its functionality with a suitable diagram and an illustrative example. (5) CO5

OR

5.f) Construct a flowchart to illustrate the CSMA/CD algorithm. (5) CO5

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