

K. J. Somaiya Institute of Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

Feb-March 2024
(B. Tech) Program: AIDS Scheme II
Supplementary Examination: TY Semester: V
Course Code: AIDLC5051 and Course Name: Computer Networks

Date of Exam: 7/3/2024

Duration: 2.5 Hours

Max. Marks: 60

Instructions:

- (1) All questions are compulsory.
(2) Draw neat diagrams wherever applicable.
(3) Assume suitable data, if necessary.

		Max. Marks	CO	BT level
1	Solve any six questions out of eight:	12		
i)	Differentiate between OSI model and TCP/IP model ?	2	CO2	Un
ii)	What is WAN in computer networks ?	2	CO1	Un
iii)	What is an Ethernet ?	2	CO3	Un
iv)	In the IPv4 addressing format, how many networks are allowed under Class C addresses?	2	CO4	Un
v)	If in CIDR notation an IP address is written as 172.26.17.1/25, what is the subnet mask?	2	CO4	Ap
vi)	Explain one bit sliding window protocol ?	2	CO5	Un
vii)	How does UDP differ from TCP ?	2	CO5	Un
viii)	What is the purpose of DNS?	2	CO6	Un
Q.2	Solve any four questions out of six.	16		
i)	Which protocol is used to access the data on the web? Explain in detail.	4	CO6	Un
ii)	Explain the services of the Physical layer of OSI model.	4	CO2	Un
iii)	How does CSMA/CD work ?	4	CO3	Un
iv)	Which network topology has a single point of failure? Explain with a diagram.	4	CO1	Un
v)	A large number of consecutive IP addresses are available at 198.16.0.0. Suppose that 4 organizations A,B,C and D request 4000, 2000, 4000 and 8000 addresses respectively, and in that order. For each of these give the first IP address assigned, the last IP address assigned and the mask.	4	CO4	Ap
vi)	Explain ALOHA system with its two versions.	4	CO5	Un

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Q.3	Solve any two questions out of three.	16		
i)	What are the functions of layers in the TCP/IP model?	8	CO1	Un
ii)	Using Dijkstra's Algorithm, find the shortest distance from source vertex 'A' to remaining vertices in the following graph-	8	CO4	Ap
iii)	A 1 Mbps satellite link connects two ground stations. The altitude of the satellite is 36504 km and speed of the signal is 3×10^8 m/sec. What should be the packet size for a channel utilization of 25% for a satellite link using go back 127 sliding window protocol?	8	CO5	Ap
Q.4	Solve any two questions out of three.	16		
i)	Explain the various connecting devices used in computer networks with diagrams, advantages and disadvantages.	8	CO2	Un
ii)	A bit stream 01011011. is transmitted using the standard CRC method. The generator polynomial is x^3+x^2+1 . What is the actual bit string transmitted? At the receiver, how do we come to know if there is error or not.	8	CO3	Ap
iii)	Write a note on HTTP and SMTP. Also write its advantage and disadvantage	8	CO6	Un
