Hall Ticket Number:

Code No. : 15643 S N/O

VASAVI COLLEGE OF ENGINEERING *(AUTONOMOUS)*, HYDERABAD

Accredited by NAAC with A++ Grade

B.E. (I.T.) V-Semester Supplementary Examinations, June-2023

Data Communications and Computer Networks

Time: **3 hours** Max. Marks: **60**

*Note: Answer all questions from **Part-A** and any **FIVE** from **Part-B***

Part-A (10 × 2 = 20 Marks)

Q. No.	Stem of the question	M	L	CO	PO
1.	List the functionalities of Network layer.	2	1	1	1
2.	Identify any three key differences between LAN and WAN.	2	1	1	1
3.	Define burst error.	2	1	2	1
4.	Calculate the hamming distance d (10101, 11110).	2	3	2	1
5.	Write the advantage of Classless addressing.	2	1	3	1
6.	Host A sends a datagram to host B. Host B never receives the datagram, and host A never receive notification of failure. Give two different explanations of what might have happened. Host A sends a datagram to host B. Host B never receives the datagram, and host A never receives notification of failure. What could have happened?	2	2	3	2
7.	If the sequence number is 8001 for the SYN flag and sequence number for SYN + ACK is 15000 from server then what is the acknowledgement number for SYN + ACK.	2	3	4	1
8.	What is the largest amount of data that can be encapsulated in a UDP datagram?	2	3	4	1
9.	List the functions performed by a Network management system.	2	1	5	1
10.	"FTP needs two TCP connections". Support the statement.	2	3	5	1
	Part-B (5 × 8 = 40 Marks)				
11. a)	Explain the TCP/IP model. Differentiate it with OSI model.	4	2	1	1
b)	Compare and contrast the guided and unguided transmission media.	4	2	1	1
12. a)	Given M=10110 P=1101, using CRC i) What is the codeword sent at senders' site ii) Show checking at receivers' site iii) Which type of errors can be identified using this divisor?	4	3	2	2
b)	Differentiate between go-back n and selective repeat protocols.	4	2	2	2

Contd... 2

13. a)	Explain the distance vector routing algorithm with a suitable example.	4	2	3	1
b)	You have sub-netted your class C network 200.138.1.0 with a subnet mask of 255.255.255.252. list the following: i) number of networks and number of hosts per network, ii) the full range of the first three networks, iii) the usable address ranges from those first three networks. iv) identify the broadcast addresses for first three networks.	4	3	3	2
14. a)	Describe the different congestion control techniques in detail.	4	2	4	1
b)	Why does UDP exist? Would it have been enough to just let our processes send raw IP packets? Discuss.	4	3	4	2
15. a)	Illustrate the name resolution in DNS.	4	2	5	1
b)	Write the steps in the request to delete the file at location /bin/file1.	4	3	5	2
16. a)	Differentiate between circuit switching and packet switching.	4	2	1	1
b)	Briefly describe the how the wireless LAN protocol CSMA/CA is able to control the hidden station and exposed station problem.	4	2	2	1
17.	Answer any ***two*** of the following:				
a)	A large number of consecutive IP addresses are available starting at 198.16.0.0. Suppose that four organizations A, B, C and D request 4,000, 2,000, 4,000 and 8,000 addresses, respectively, and in that order. For each of these, give the first IP address assigned, and the mask in the w.x.y.z/v notation.	4	3	3	2
b)	Illustrate the token bucket algorithm. How does it help in improving the quality of service?	4	3	4	1
c)	Explain in brief the Architecture and services of E-mail.	4	1	5	1

M : Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

i)	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	40%
iii)	Blooms Taxonomy Level – 3 & 4	40%

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