Hall Ticket Number:

Code No.: 21515

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

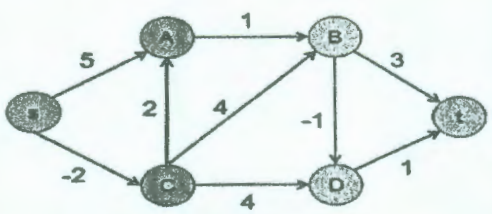
M.E. (ECE: CBCS) I-Semester Main Examinations, January-2019

(Communication Engineering & Signal Processing)

Data and Computer Communication Networks

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

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

Q. No	Stem of the Question	M	L	CO	PO
	Part-A (10 × 2 = 20 Marks)				
1.	Differentiate between 1- Persistent and P-Persistent techniques.	2	2	2	1
2.	For an FDM multiplexed system, find the minimum bandwidth for the path with five lines each requiring 4000Hz.	2	3	2	3
3.	How piggy backing is used in HDLC protocol?	2	3	3	1
4.	A telephone line has bandwidth of 3000Hz and the signal to noise ratio is 3162. Calculate the channel capacity.	2	1	1	3
5.	Why is adaptive routing protocol preferred over other fixed routing protocols?	2	1	3	2
6.	Compare Datagram and Virtual circuit switching in networks.	2	2	2	1
7.	Define point coordination function and distributed coordination function as related to IEEE 802.11.	2	1	4	1
8.	State the requirements in choosing a topology for a network.	2	4	4	1
9.	Can you deploy a LAN without IP address? If so, how are the nodes identified and communicated in LAN?	2	3	5	3
10.	How does an user to network interface differ from a network to network interface in ATM?	2	1	5	1
	Part-B (5 × 8 = 40 Marks)				
11. a)	Identify the key components of any data network and explain them briefly.	3	2	1	1
b)	Discuss various TCP/IP addressing concepts and also give examples for classful and classless addressing.	5	2	1	3
12. a)	Discuss the architecture and Layers of SONET and calculate the signal rate of STS-1 frame assuming standard specifications.	4	2	2	1
b)	Design a cyclic encoder and decoder for (7, 4) cyclic code for messages 1011, 0101.	4	4	2	3
13. a)	Determine the least cost path using Bellman Ford algorithm for the following network. 	4	4	3	3
b)	Compare in channel signaling and common channel signaling methods.	4	2	3	1

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14. a)	Give the differences between a bridge, two layered switch and a three layer switch.	4	4	4	1
b)	Explain the spanning tree approach in networks with the help of an example.	4	3	4	3
15. a)	Discuss the role of firewalls in the security of internet.	4	4	5	1
b)	Compare and contrast IPV4, IPV6 and give reasons for moving from IPv4 to IPv6?	4	1	5	2
16. a)	Compare ISO-OSI and TCP/.IP models.	4	3	1	1
b)	A network with one primary and four secondary stations uses polling. The size of data frame is 1000 bytes. The size of Poll, ACK and NAK are of 32 bytes each. Each Station has 5 frames to send. How many total bytes are exchanged? Assume that there is no limitation on number of frames, a station can send in response to a poll.	4	2	3	3
17.	Answer any ***two*** of the following:				
a)	Write notes on X.25 protocol.	4	2	2	1
b)	Draw the structure of MAC frame format and describe different fields in the frame.	4	2	4	1
c)	Illustrate the role of H.323 protocol in VoIP communication.	4	4	5	2

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

S. No.	Criteria for questions	Percentage
1	Fundamental knowledge (Level-1 & 2)	57.5
2	Knowledge on application and analysis (Level-3 & 4)	42.5
3	*Critical thinking and ability to design (Level-5 & 6) (*wherever applicable)	---