

**BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE  
(AUTONOMOUS)**

***I – MCA II - Semester Regular/Supplementary Examinations (BR23), June/July - 2025***

**Computer Networks (MCA)**

Time: 3 hours

Max. Marks: 70

***Answer any Five Questions One Question for One UNIT  
ALL the Question Carry Equal Marks***

<b>UNIT-I</b>		<b>Marks</b>	<b>CO</b>	<b>BL</b>
1.a)	Explain the different types of network topologies. Compare their advantages and disadvantages.	7M	CO1	BL2
b)	Describe and differentiate between LAN, MAN, and WAN with suitable examples.	7M	CO1	BL3
<b>OR</b>				
2.a)	Discuss the OSI Reference Model in detail, highlighting the functions of each layer.	7M	CO1	BL3
b)	Explain the TCP/IP Reference Model. How is it different from the OSI model?	7M	CO1	BL3
<b>UNIT-II</b>		<b>Marks</b>	<b>CO</b>	<b>BL</b>
3.a)	Explain the services provided by the Data Link Layer to the Network Layer.	7M	CO2	BL2
b)	Differentiate between error-detecting and error-correcting codes with suitable examples.	7M	CO2	BL2
<b>OR</b>				
4.a)	Discuss the difference between flow control and error control. How are they implemented?	7M	CO2	BL2
b)	Describe the concept of framing. Why is it necessary in the Data Link Layer?	7M	CO2	BL2
<b>UNIT-III</b>		<b>Marks</b>	<b>CO</b>	<b>BL</b>
5.a)	Discuss the concept and working of limited contention protocols in medium access control.	7M	CO3	BL3
b)	Illustrate the 802.11 wireless LAN architecture. How does it support different communication modes?	7M	CO3	BL3
<b>OR</b>				
6.a)	Differentiate between Classic Ethernet and Fast Ethernet in terms of performance and features.	7M	CO3	BL3
b)	Explain the architecture of Classic Ethernet and describe its physical and MAC sub-layers.	7M	CO3	BL3
<b>UNIT-IV</b>		<b>Marks</b>	<b>CO</b>	<b>BL</b>
7.a)	Differentiate between virtual circuit and datagram networks with suitable illustrations.	7M	CO4	BL4
b)	Compare and contrast distance vector and link state routing algorithms.	7M	CO4	BL4
<b>OR</b>				
8.a)	Explain the shortest path and flooding algorithms used in routing.	7M	CO4	BL4
b)	What are the general principles and policies of congestion control in networks?	7M	CO4	BL4

**UNIT-V**

	<b>Marks</b>	<b>CO</b>	<b>BL</b>
9.a) Discuss the FTP protocol, highlighting the control and data connections along with its security aspects.	7M	CO5	BL2
b) Describe the architecture of electronic mail and the difference between web-based and traditional email systems.	7M	CO5	BL2

**OR**

10.a) Explain the structure and function of the Domain Name System (DNS). How does name resolution occur in DNS?	7M	CO5	BL2
b) What is TELNET? Compare local logging with remote logging.	7M	CO5	BL2

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