BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE
(AUTONOMOUS)
III - B.Tech I-Semester Regular Examinations (BR23), Nov/Dec - 2025
COMPUTER NETWORKS (COMMON TO CSE-AI&DS,AIML)

Time: 3 hours   Max. Marks: 70

Question Paper consists of Part-A and Part-B
Answer ALL the question in Part-A andPart-B

PART–A (10X2 = 20M)

		Marks	CO	BL
1. a)	Define the functions of each OSI layer.	(2M)	CO1	BL1
b)	List the advantages of layered architecture in OSI model.	(2M)	CO1	BL1
c)	List two types of transmission media.	(2M)	CO2	BL1
d)	Demonstrate the working of Stop-and-Wait ARQ protocol.	(2M)	CO2	BL3
e)	Define unicast and multicast communication.	(2M)	CO3	BL1
f)	Explain the difference between IPv4 and IPv6 addressing formats.	(2M)	CO3	BL2
g)	State any two services provided by the Transport Layer.	(2M)	CO4	BL1
h)	Illustrate the role of port numbers in TCP/UDP communication.	(2M)	CO4	BL3
i)	Name any two email protocols.	(2M)	CO5	BL1
j)	Classify the functions of the HTTP protocol in web communication.	(2M)	CO5	BL4

PART–B (5X10 = 50M)

2a.	Illustrate the OSI reference model with a neat diagram.	5(M)	CO1	BL3
b.	Differentiate the TCP/IP model and its layers.	5(M)	CO1	BL2
(OR)				
3a.	Analyze the OSI model and its limitations.	5(M)	CO1	BL4
b.	Summarize the history of the Internet and its evolution.	5(M)	CO1	BL2

4a.	Demonstrate Error Detecting and Error Correcting codes with examples.	5(M)	CO2	BL3
b.	Examine Sliding Window Protocols with suitable diagrams.	5(M)	CO2	BL4
(OR)				
5a.	Compare HDLC and PPP protocols.	5(M)	CO2	BL5
b.	Illustrate Ethernet and Gigabit Ethernet technologies.	5(M)	CO2	BL3

6a.	Apply the Distance Vector Routing Algorithm to a sample network.	5(M)	CO3	BL3
b.	Explain Congestion Control Algorithms with examples.	5(M)	CO3	BL2
	(OR)			
7a.	Differentiate between Classful and Classless (CIDR) addressing.	5(M)	CO3	BL2
b.	Analyze the role of NAT in IPv4 to IPv6 transition.	5(M)	CO3	BL4

8a.	Discuss the key features of TCP protocol.	5(M)	CO4	BL2
b.	Classify the services provided by UDP and SCTP.	5(M)	CO4	BL4
	(OR)			
9a.	Compare and contrast TCP and UDP protocols with examples.	5(M)	CO4	BL5
b.	Evaluate congestion control in TCP.	5(M)	CO4	BL5

10a	Illustrate the working of HTTP protocol with request–response examples.	5(M)	CO5	BL3
b.	Analyze Electronic Mail protocols – SMTP, POP3, and IMAP.	5(M)	CO5	BL4
	(OR)			
11a	Demonstrate how DNS works with an example scenario.	5(M)	CO5	BL3
b.	Explain Remote Login and File Transfer protocols (TELNET, FTP).	5(M)	CO5	BL2

****

Faculty in- charge

Head of the department