

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: BCA
BRANCH: BCA**

**SEMESTER : IV
SESSION : SP/2025**

SUBJECT: CN225 COMPUTER NETWORKS

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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		CO	BL
Q.1(a)	Describe different types of network hardware used in various types of networks.	[5] CO1	1
Q.1(b)	Briefly explain the protocol hierarchies and the design issues for layers, including interfaces and services provided by each layer.	[5] CO1	1,2
Q.2(a)	What is line coding? Discuss any two common line coding schemes with their characteristics. Also, encode the bit pattern 1110101 using both of the chosen schemes.	[5] CO2	2,3
Q.2(b)	Briefly explain the difference between Frequency Division Multiplexing (FDM) and Time Division Multiplexing (TDM).	[5] CO2	4
Q.3(a)	Compare and contrast the Stop-And-Wait ARQ and Go-Back-N ARQ protocols. Explain the reason for moving from the Stop-And-Wait ARQ protocol to Go-Back-N ARQ protocol.	[5] CO3	2,4
Q.3(b)	Describe the HDLC (High-Level Data Link Control) protocol in detail. Discuss the frame structure and types of frames supported by HDLC protocol.	[5] CO3	1,2
Q.4(a)	Compare IPv4 and IPv6 in terms of address format and header structure. Why was there a need for transition from IPv4 to IPv6?	[5] CO4	2,3
Q.4(b)	What do you mean by network congestion? Explain the causes and effects of congestion in a computer network.	[5] CO4	1,2
Q.5(a)	Explain the structure of the DNS name space. How is it organized, and what role do domain name hierarchies play in managing the distribution of domain names?	[5] CO5	2,5
Q.5(b)	What is the role of SNMP in network management? Discuss the role of its key elements—such as the manager, agent, and MIB in monitoring and controlling network devices?	[5] CO5	3,5

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