

**CMR ENGINEERING COLLEGE: : HYDERABAD**  
**UGC AUTONOMOUS**

**III-B.TECH-I-Semester End Examinations (Regular) - December- 2025**

**COMPUTER NETWORKS**

**(Common for CSE, CSD)**

**[Time: 3 Hours]**

**[Max. Marks: 60]**

**Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 10 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks.

**PART-A**

**(10 Marks)**

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|-------|--|------|
| 1. a) | Define computer network.   | [1M] |
| b)    | List out guided and unguided transmission media.   | [1M] |
| c)    | What are the design issues of data link layer?   | [1M] |
| d)    | Define PPP.  | [1M] |
| e)    | Define network routing.  | [1M] |
| f)    | What is the network address in a class A subnet with the IP address of one of the hosts as 25.34.12.56 and mask 255.255.0.0? | [1M] |
| g)    | What are the responsibilities of transport layer?  | [1M] |
| h)    | Define jitter.   | [1M] |
| i)    | List the functions of application layer.   | [1M] |
| j)    | Define static and dynamic web pages.   | [1M] |

**PART-B**

**(50 Marks)**

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| 2. | Explain different layers and their functionality of TCP/IP reference model with neat sketch. | [10M] |
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**OR**

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| 3. | What are the different types of networks? Explain in detail. | [10M] |
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| 4. | Explain Go-Back- N ARQ protocol using selective repeat with neat sketch. | [10M] |
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**OR**

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| 5.a) | What is HDLC? Explain the frame format in HDLC with types.      | [5M] |
| b)   | Explain the frequency division multiplexing with a neat sketch. | [5M] |

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| 6. | Illustrate the routing functionality of Distance vector routing algorithm with an example. | [10M] |
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**OR**

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| 7. | Explain the congestion control algorithms. | [10M] |
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| 8. | Draw and explain each field in the TCP Segment header. | [10M] |
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**OR**

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| 9. | Explain TCP connection management with neat diagram. | [10M] |
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| 10. | Explain the following terms<br>i) WWW ii) HTTP. | [10M] |
|-----|---|-------|

**OR**

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| 11.a) | How DNS service maps domain names to IP addresses? Explain with an example. | [5M] |
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| b) | Discuss about audio compression. | [5M] |
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