

Dr. Babasaheb Ambedkar Open University
Term End Examination January – 2026

Course	: BSCIT	Date	: 17/02/2026
Subject Code	: BSCIT-302	Time	: 03:00pm to 05:15pm
Subject Name	: Computer Networks	Duration	: 02.15 Hours
		Max. Marks	: 70

Section A

Answer the following (Attempt any three) (30)

1. Define Data Communication. Explain its five basic components (Message, Sender, Receiver, Medium, and Protocol) in detail.
2. What is a Network Topology? Explain Mesh, Star, and Bus topologies with their advantages and disadvantages.
3. Describe the OSI Reference Model in detail. Explain the functions of each of the seven layers.
4. Explain the difference between Guided and Unguided transmission media. Provide examples for each type.
5. What is Switching? Explain the three phases of Circuit Switching and compare it with Packet Switching.

Section B

Answer the following (Attempt any four) (20)

1. Differentiate between LAN, MAN, and WAN based on geographical area and data rates.
2. Explain the characteristics of Sine Waves, including Amplitude, Period, and Phase.
3. Describe the functions of the Data Link Layer, specifically focusing on Error Control and Flow Control.
4. What is Fiber Optic cable? Discuss its advantages over Coaxial and Twisted-pair cables.
5. Explain the concept of Routing and describe the difference between Static and Dynamic routing.
6. Write a short note on the TCP/IP Protocol Suite and its comparison with the OSI model.

Section C

Part – A (Multiple Choice Questions) (10)

1. Which topology requires a central controller or hub?
A. Mesh B. Star C. Bus D. Ring

- 2 The _____ layer is responsible for process-to-process delivery.
A. Physical B. Network C. Transport D. Data Link
- 3 Which transmission media provides the highest data rate and immunity to electromagnetic interference?
A. Coaxial Cable B. Twisted Pair C. Fiber Optic D. Radio Waves
- 4 How many layers are present in the OSI model?
A. 4 B. 5 C. 7 D. 6
- 5 A _____ is a set of rules that governs data communication.
A. Forum B. Protocol C. Standard D. RFC
- 6 In _____ switching, a dedicated path is established between the sender and receiver.
A. Packet B. Message C. Circuit D. Virtual
- 7 Which device operates at the Physical layer of the OSI model?
A. Bridge B. Router C. Hub D. Switch
- 8 IP Address is a _____ address.
A. Physical B. Logical C. MAC D. Port
- 9 Which mode of communication allows data to flow in both directions simultaneously?
A. Simplex B. Half-Duplex C. Full-Duplex D. None of these
- 10 The _____ layer is the layer closest to the transmission medium.
A. Network B. Physical C. Data Link D. Application

Part – B (Do as Directed)

(10)

State whether the following statements are true or false

- 1 In a Mesh topology, every device has a dedicated point-to-point link to every other device.
- 2 The Network layer is responsible for framing data bits.
- 3 UDP is a connection-oriented protocol.
- 4 Attenuation refers to the loss of energy as a signal propagates through a medium.
- 5 A Router is used to connect two or more different networks.
- 6 Analog signals can only take on a limited number of defined values.
- 7 HTTP operates at the Application layer of the OSI model.
- 8 Packet switching does not require a dedicated path for communication.
- 9 A Bluetooth network is an example of a Wide Area Network (WAN).
- 10 The Presentation layer handles data encryption and compression.
