

**R18**

Code No: 155AN

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, March - 2024

**COMPUTER NETWORKS**

(Computer Science and Engineering – Artificial Intelligence and Machine Learning)

Time: 3 Hours

Max. Marks: 75

**Note:** i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

**PART – A**

**(25 Marks)**

- 1.a) What is a computer network? Explain. [2]
- b) Write the properties of fiber optics. [3]
- c) What is framing in data link layer? Explain. [2]
- d) Explain about data link layer switching. [3]
- e) What is Flooding? Explain. [2]
- f) What is the function of network layer in the Internet? [3]
- g) What are the elements of a Transport protocol? [2]
- h) How does UDP differ from TCP? List the applications of UDP. [3]
- i) What is World Wide Web (WWW)? [2]
- j) Explain about SNMP. [3]

**PART – B**

**(50 Marks)**

- 2.a) Compare and contrast the OSI and TCP/IP reference models.
  - b) With a neat diagram, explain ARPANET design. [5+5]
- OR**
- 3.a) Discuss in detail about various network software and hardware.
  - b) Explain about various transmission media used in physical layer with a neat sketch. [5+5]
- 4.a) What are the various types of error detection methods? Discuss.
  - b) Explain how slotted ALOHA solves the problem of Channel allocation. [5+5]
- OR**
- 5.a) Explain one-bit sliding window protocol. Give the advantages and disadvantages of one-bit sliding window protocol.
  - b) Discuss about Carrier Sense Multiple Access (CSMA) protocols in brief. [5+5]
6. With an example, explain shortest path routing technique. [10]
- OR**
- 7.a) Discuss about distance vector routing algorithm with an example.
  - b) Explain the general principles of congestion control algorithms. [5+5]

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8. How a connection is established in a Transport Protocol. Explain three protocol scenarios for establishing a connection. [10]

**OR**

9.a) What are the services provided by transport layer to the upper layers? Explain.

b) Write the structure of TCP pseudo header and explain how it is used in checksum calculation. [5+5]

10.a) How DNS service maps domain names to IP addresses? Explain with an example.

b) Describe the typical elements in an audio streaming architecture. [5+5]

**OR**

11.a) With neat sketch, explain the architecture, services and message format of Electronic Mail.

b) What is DNS? What resource records are associated with it? Explain. [5+5]

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