

**Please check that this question paper contains 09 questions and 02 printed pages within first  
10 minutes.**

[Total No. of Questions: 09]

[Total No. of Pages:02]

Uni. Roll No. ....

MORNING

Program/ Course: **B.Tech. (Sem. 3<sup>rd</sup>)**

13 MAY 2023

Name of Subject: **Data Communication and Computer Networks**

Subject Code: **PCIT-103**

Paper ID: 16043

**Time Allowed:3 Hours**

**Max. Marks:60**

**NOTE:**

- 1) **Parts A and B are Compulsory**
- 2) **Part C** has Two Questions Q8 and Q9. Both are compulsory, but with internal choice.
- 3) Any missing data may be assumed appropriately.

**Part – A**

**[Marks: 02 each]**

Q1.

- a) What is the difference between LAN and WAN?
- b) List the various types of media used for networking.
- c) Differentiate between message and packet switching.
- d) What are the design issues in data link layer?
- e) Distinguish between static and dynamic allocation.
- f) Why are protocols needed?

**Part – B**

**[Marks: 04 each]**

Q2. What do you mean by network topology? Explain the different network topologies.

Q3. Explain the OSI reference model with neat diagram.

Q4. Discuss in detail about the functions of network layer and transport layers

Q5. How does Leaky bucket algorithm work?

Q6. Illustrate the working of CSMA / CD and CSMA/CA protocol

Q7. Formulate the working of Email in detail.

MORNING  
13 MAY 2023

Part – C

[Marks: 12 each]

Q8. Develop with examples the three mechanisms by which congestion control is achieved in TCP. Differentiate these mechanisms.

OR

Explain in detail a) flow control and buffering b) Domain Name System

Q9. Elaborate the various data link protocols for noisy and noiseless channels

OR

Explain how to build network with TCP/IP reference model.

\*\*\*\*\*