No. of Printed Pages : **4**

Sl. No.

B1.5-R5 : DATA COMMUNICATION AND COMPUTER NETWORKS

DURATION : 03 Hours **MAXIMUM MARKS : 100**

Roll No. : | | | | | | |

Answer Sheet No. : | | | | | | |

Name of Candidate : _____ **; Signature of Candidate :** _____

INSTRUCTIONS FOR CANDIDATES :

- Carefully read the instructions given on Question Paper, Answer Sheet.
- Question Paper is in English language. Candidate has to answer in English Language only.
- **Question paper contains Seven questions. The Question No. 1 is compulsory. Attempt any FOUR Questions from Question No. 2 to 7.**
- **Parts of the same question should be answered together and in the same sequence.**
- **Questions are** to be answered in the **ANSWER SHEET** only, supplied with the Question Paper.
- **Candidate cannot leave the examination hall/ room without signing on the attendance sheet and handing over his/her Answer Sheet to the Invigilator. Failing in doing so, will amount to disqualification of Candidate in this Module/Paper.**
- After receiving the instruction to open the booklet and before answering the questions, the candidate should ensure that the Question Booklet is complete in all respects.

DO NOT OPEN THE QUESTION BOOKLET UNTIL YOU ARE TOLD TO DO SO.

1. (a) Differentiate between datagram and virtual switching.

(b) Define Cell Switching ATM (Asynchronous Transfer Mode), highlighting its various components and services.

(c) Write a short note on Distance Vector Protocol for routing.

(d) Briefly discuss the significance and role of ITU and IETF in computer networks.

(e) Briefly describe the ICMP Protocol commonly used for diagnostic purposes. Mention different types of Error Reporting messages in this Protocol.

(f) Write a short note on DNS and Namespace in Application Layer.

(g) Briefly discuss congestion control in Transport Layer.

(7x4)

2. (a) Briefly discuss the Stream Control Transmission Protocol (SCTP). Mention different components of packet structure.

(b) Define QoS in Data Networks. Write down its objectives, mechanisms and parameters.

(c) What do you mean by IoT ? Briefly discuss IoT data protocols used in application layer.

(6+6+6)

3. (a) Explain the TCP segment header format in detail along with its diagrammatic representation.

(b) What do you mean by network programming? Explain the various steps used in network programming.

(12+6)

4. (a) Write a simple TCP Client and Server Program in Python.

(b) Define Simple Network Management Protocol (SNMP). Describe the working principle of its main components.

(12+6)

5. (a) Discuss the Multimedia Application Requirements used in computer networks.

(b) What do you understand by multiplexing ? Differentiate between Frequency Division Multiplexing (FDM) and Time Division Multiplexing (TDM).

(c) Define Content Delivery Network (CDN). Explain different types of CDNs.

(6+9+3)

6. (a) Differentiate between random access and controlled access in data link layer in computer networks. Briefly discuss random-access protocol ALOHA and its channel utilization.

(b) Explain the different types of transmission media used in computer networks along with their uses.

(12+6)

7. (a) Write down the differences between public and private IP addresses. Discuss IPv4 address method used in computer networks.

(b) Discuss in brief Software Defined Networking. Differentiate it from traditional networking.

(10+8)

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SPACE FOR ROUGH WORK