A9.3-R5 : NETWORK MANAGEMENT

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

OMR Sheet No. : ☐☐☐☐☐

Roll No. : ☐☐☐☐☐☐   **Answer Sheet No. :** ☐☐☐☐☐☐

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

INSTRUCTIONS FOR CANDIDATES :

- Carefully read the instructions given on Question Paper, OMR Sheet and Answer Sheet.

- Question Paper is in English language. Candidate has to answer in English language only.

- There are **TWO PARTS** in this Module/Paper. **PART ONE** contains **FOUR** questions and **PART TWO** contains **FIVE** questions.

- **PART ONE** is Objective type and carries **40** Marks. **PART TWO** is Subjective type and carries **60** Marks.

- **PART ONE** is to be answered in the **OMR ANSWER SHEET** only, supplied with the question paper, as per the instructions contained therein. **PART ONE** is **NOT** to be answered in the answer book for **PART TWO**.

- Maximum time allotted for **PART ONE** is **ONE HOUR**. Answer book for **PART TWO** will be supplied at the table when the Answer Sheet for **PART ONE** is returned. However, Candidates who complete **PART ONE** earlier than one hour, can collect the answer book for **PART TWO** immediately after handing over the Answer Sheet for **PART ONE** to the Invigilator.

- **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.

PART-ONE
(Answer all Questions. Each question carries ONE mark)

1. **Each question below gives a multiple choice of answers. Choose the most appropriate one and enter in the "OMR" answer sheet supplied with the question paper, following instructions therein.**

    (1x10)

1.1. The protocol data unit(PDU) for the application layer in the Internet stack is :
    (A) Segment
    (B) Datagram
    (C) Message
    (D) Frame

1.2. Which of the following transport layer protocols is used to support electronic mail ?
    (A) SMTP
    (B) IP
    (C) TCP
    (D) UDP

1.3. Communication channel is shared by all the machines on the network in :
    (A) Broadcast network
    (B) Unicast network
    (C) Multicast network
    (D) None of the mentioned

1.4. A _____ is a device that forwards packets between networks by processing the routing information included in the packet.
    (A) Bridge
    (B) Firewall
    (C) Router
    (D) All of the mentioned

1.5. Network congestion occurs :
    (A) In case of traffic overloading
    (B) When a system terminates
    (C) When connection between two nodes terminates
    (D) None of the mentioned

1.6. The data link layer takes the packets from which of the following layer and encapsulates them into frames for transmission.
    (A) Network layer
    (B) Physical layer
    (C) Transport layer
    (D) Application layer

1.7. CRC stands for :
    (A) Cyclic redundancy check
    (B) Code repeat check
    (C) Code redundancy check
    (D) Cyclic repeat check

1.8. The physical layer concerns for which of the following ?
    (A) Bit-by-bit delivery
    (B) Process to process delivery
    (C) Application to application delivery
    (D) None of the mentioned

1.9. Physical layer provides :
    (A) Mechanical specifications of electrical connectors and cables
    (B) Electrical specification of transmission line signal level
    (C) Procedural Interface to transmission medium
    (D) All of the mentioned

1.10. Wireless transmission can be done via which of the following ?
    (A) Radio waves
    (B) Microwaves
    (C) Infrared
    (D) All of the mentioned

2. **Each statement below is either TRUE or FALSE. Choose the most appropriate one and enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein.** **(1x10)**

2.1. Bus topology is able to connect to each computer through a common central line.

2.2. Modem networking device connect one LAN to other LAN using same protocol.

2.3. Port Address Translation (PAT) allows a one-to-many approach to network address translation.

2.4. User Datagram Protocol is a connection network service at the Transport layer, and TCP uses this connectionless service.

2.5. ICMP is the protocol at the Network layer that is used to send messages back to an originating router.

2.6. Flow control allows the receiving device to control the transmitter so the receiving device's buffer does not overflow.

2.7. IPv6 address has a size of 265 bits.

2.8. Fiber optical cable is not a guided media.

2.9. Transport layer aggregates data from different applications into a single stream before passing it to Network Layer.

2.10. TCP/IP model does not have Session layer and Presentation layer but OSI model have this layer.

3. **Match words and phrases in column X with the closest related meaning / words(s) / phrase(s) in column Y. Enter your selection in the "OMR" answer sheet supplied with the question paper, following instructions therein.** (1x10)

	X		Y
3.1	FTP	A	Routes
3.2	IETF standards	B	File Transfer Protocol
3.3	IP packet	C	TCP
3.4	Routing tables	D	32-bits
3.5	Transport layer	E	Source and Destination address
3.6	MAC Address	F	IP Address
3.7	IPv4	G	RFC
3.8	Reliable service	H	Full-Duplex
3.9	Network Layer	I	Switch
3.10	DHCP Server	J	Router
		K	end-to-end communication services for applications
		L	48-bits
		M	1024 bits

4. Each statement below has a blank space to fit one of the word(s) or phrase(s) in the list below. Choos the most appropriate option, enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein.

(1x10)

A	CSMA/CA	B	Physical layer	C	Transport layer	D	Broadcast network
E	End System	F	Topology	G	Medium	H	Application layer
I	LAN	J	MAN	K	Simplex	L	Digital modulation
M	SMTP						

4.1 Communication between a computer and a keyboard involves _____ transmission.

4.2 The _____ is the physical path over which a message travels.

4.3 Communication channel is shared by all the machines on the network in _____.

4.4 Application layer is implemented in _____.

4.5 _____ is responsible for process to process delivery.

4.6 _____ provides the services to user.

4.7 Bits can be send over guided and unguided media as analog signal by _____.

4.8 _____ is used by IEEE 802.11 standard for wireless LAN.

4.9 Physical or logical arrangement of network is _____.

4.10 Data communication system within a building or campus is_____.

PART TWO
(Answer any FOUR Questions)

5. (a) Define computer networks ? Discuss various types of networks topologies in computer network. Also discuss various advantages and disadvantages of each topology.

(b) Explain about the INTERNET history.

(c) Explain the following :
(i) LAN
(ii) MAN
(iii) WAN
(iv) ARPANET   **(5+5+5)**

6. (a) What is TCP/IP Model ? Explain the functions and protocols and services of each layer ? Compare it with OSI Model.

(b) What are the various types of error correcting techniques ?

(c) Explain about the Data Link Layer Protocols.   **(4+5+6)**

7. (a) What is pure ALOHA and slotted ALOHA ? Consider the delay of both at low load. Which one is less ? Explain your answer.

(b) Explain about the different types of connecting devices in computer networks.   **(7+8)**

8. (a) Explain about the ROUTING ALGORITHMS.

(b) Explain the following application protocols : FTP & STMP.

(c) What is DNS ? Explain its working.   **(7+4+4)**

9. (a) What are various wired & wireless transmission media used in Computer Network ?

(b) Explain the various types of multiplexing.

(c) What is congestion and its types ?

(8+5+2)

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SPACE FOR ROUGH WORK

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