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 Which one of the following is a data link protocol ?
(A) TCP
(B) HDLC
(C) ICMP
(D) POP

1.2 What is the location of a resource on the internet ?
(A) URL
(B) Protocol
(C) ICMP
(D) HTTP

1.3 SMTP is a _____ layer protocol.
(A) Data link
(B) Network
(C) Transport
(D) Application

1.4 Four channels are multiplexed using TDM. If each channel sends 100 bytes/second and we multiplex 1 byte per channel, then the bit rate for the link is _____.
(A) 400 bps
(B) 800 bps
(C) 1600 bps
(D) 3200 bps

1.5 Infrared signals can be used for short range communication in a closed area using _____ propagation.
(A) ground
(B) sky
(C) line of sight
(D) space

1.6 The bit rate of a signal is 3000 bps. If each signal unit carries 6 bits, the baud rate of the signal is :
(A) 500 baud/sec
(B) 1000 baud/sec
(C) 3000 baud/sec
(D) 18000 baud/sec

1.7 Data encryption techniques are particularly used for :
(A) protecting data in Data Communication System.
(B) reducing Storage Space Requirement.
(C) enhancing Data Integrity.
(D) decreasing Data Integrity.

1.8 Both hosts and routers are TCP/IP protocol software. However, routers do not use protocol from all layers. The layer for which protocol software is not needed by a router is :
(A) Application
(B) Physical
(C) Internet
(D) Network Interface

1.9 In which Routing Method do all the routers have a common database ?
(A) Distance vector
(B) Link state
(C) Link vector
(D) Dijkestra method

1.10 Start and stop bits are used in serial communications for :
(A) Error detection
(B) Error correction
(C) Synchronization
(D) Slowing down the communication

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 The Internet and the World Wide Web are essentially the same thing.

2.2 In a peer-to-peer network, any client computer can also be a server.

2.3 A server can run on a workstation computer.

2.4 Jitter refers to the variation in the packet arrival time.

2.5 Wireless networking is secured.

2.6 Wide area networks are private, third-party-managed networks that are economical because they are shared by multiple organizations.

2.7 In pure ALOHA, the vulnerable time is twice the frame transmission time.

2.8 In ATM the size of cell is of 51 bytes.

2.9 Half Duplex communication permits data transfer in both the direction simultaneously.

2.10 A burst error means that 2 or more bits in the data unit have changed.

3. **Match words and phrases in column X with the closest related meaning/word(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	2G	**A.**	Hertz
3.2	Full Duplex	**B.**	Network layer
3.3	Router	**C.**	Transport Layer
3.4	Circuit Switching	**D.**	Messaging
3.5	Optical Fiber	**E.**	20
3.6	CRC	**F.**	Telephone Network
3.7	Frequency	**G.**	Light
3.8	RARP	**H.**	Physical Layer
3.9	TCP	**I.**	25
3.10	FTP	**J.**	Data Link Layer
		K.	35
		L.	Physical to logical Address
		M.	UDP

4. **Each statement below has a blank space to fit one of the word(s) or phrase(s) in the list below. Choose the most appropriate option, enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein.** **(1x10)**

A.	1024	**B.**	HTTP	**C.**	Transport layer
D.	$n(n-1)/2$	**E.**	TCP	**F.**	UDP
G.	WAN	**H.**	110	**I.**	80
J.	Protocol	**K.**	Binary exponential back off	**L.**	$n(n-1)$
M.	Application Layer				

4.1 _____ is connection less transport layer protocol.

4.2 There are _____ well known ports assigned and controlled by ICANN.

4.3 The internet is an example of _____.

4.4 To achieve stability in CSMA/CD back off scheme, a technique known as _____ is used.

4.5 Number of links in a mesh topology network of n nodes is _____.

4.6 Port no of POP is _____.

4.7 Layer which provides service to the user _____.

4.8 Set of rules is known as _____.

4.9 The protocol primarily used for browsing data is _____.

4.10 SCTP is a _____ protocol.

PART TWO

(Answer any FOUR Questions)

5. (a) Compare serial and parallel transmission.

   (b) Differentiate between Pure ALOHA and Slotted ALOHA protocol.

   (c) The attenuation of a signal is -10 dB. What is the final signal power if it was originally 5 W ? **(6+5+4)**

6. (a) Explain the idea of stop and wait protocol.

   (b) Explain the following terms :

   Packet switching and circuit switching

   (c) Define physical topology and also compare star and ring topology. **(5+5+5)**

7. (a) An organization is granted a block of addresses with the beginning address 14.24.74.0/24. The organization needs to have 3 subblocks of addresses to use in its three subnets : one subblock of 10 addresses, one subblock of 60 addresses, and one subblock of 120 addresses. Design the subblocks.

   (b) Write short notes on the following :

   (i) LAN

   (ii) MAN

   (iii) WAN **(8+7)**

8. (a) Differentiate the Wavelengthdivision Multiplexing (WDM) and Timedivision Multiplexing (TDM).

   (b) Discuss throughput and congestion control at network layer.

   (c) Write about evolution of mobile generation technologies. **(5+5+5)**

9. (a) Explain the following terms :

   (i) HTTP

   (ii) Proxy server

   (b) Write a note on twisted-pair cable.

   (c) Explain in short the post office protocol POP3. **(7+4+4)**

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SPACE FOR ROUGH WORK