

No. of Printed Pages : 8

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 the instructions therein. (1x10)

1.1 Which of the following is **not** applicable for IP ?

- (A) Error reporting
- (B) Handle addressing conventions
- (C) Datagram format
- (D) Packet handling conventions

1.2 Which of the following demerits does Fragmentation have ?

- (A) Complicates routers
- (B) Open to DOS attack
- (C) Overlapping of fragments.
- (D) All of the mentioned

1.3 Which network topology requires a central controller or hub ?

- (A) Star
- (B) Mesh
- (C) Ring
- (D) Bus

1.4 Data communication system within a building or campus is _____.

- (A) LAN
- (B) WAN
- (C) MAN
- (D) PAN

1.5 The network layer is concerned with _____ of data.

- (A) bits
- (B) frames
- (C) packets
- (D) bytes

1.6 A 4-byte IP address consists of _____.

- (A) only network address
- (B) only host address
- (C) network address & host address
- (D) network address & MAC address

1.7 TCP/IP layer that is equivalent to the combined Session, Presentation, and Application layers of the OSI model is _____.

- (A) Network layer
- (B) Application layer
- (C) Transport layer
- (D) Physical layer

1.8 Which one of the following is **not** a function of network layer ?

- (A) Routing
- (B) Inter-Networking
- (C) Congestion Control
- (D) Error Control

1.9 What is the standard form of ICMP ?

- (A) Internet Control Message Particle
- (B) Internet Control Message Point
- (C) Internet Control Message Protocol
- (D) None of the above

1.10 Size of IPv4 = _____ and IPv6 = _____.

- (A) 32 bits, 128 bits
- (B) 32 bytes, 128 bytes
- (C) 32 bytes, 128 bits
- (D) 32 bits, 128 bytes

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 the instructions therein. (1x10)

2.1 Physical Layer (Layer 1) converts data bits into electrical impulses or radio signals.

2.2 The hub is smartest and most complicated network device.

2.3. Application Layer transfers the packets between different hosts.

2.4 HTTP is HyperText Transfer Protocol and it is responsible for web content.

2.5 TCP and UDP are the most widely used protocols that are built on the top of the IP protocol.

2.6 In a star topology, a single connection failure will halt all traffic between all sites.

2.7 1G network uses digital signals for communication.

2.8 IEEE stands for the Institute of Electrical and Electronic Establishment.

2.9 Ring and bus topologies are used in LANs.

2.10 NIC stands for Network Interface Card.

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 the instructions therein. (1x10)

X		Y	
3.1	Allow resources to network access	A.	Data Link Layer
3.2	Move packets from one destination to other	B.	Ping
3.3	Process to process message delivery	C.	ICMP
3.4	Transmission of bit stream	D.	Network Layer
3.5	Formation of frames	E.	UDP
3.6	Protect from cyber attack	F.	Physical Layer
3.7	Connection Oriented Protocol	G.	HTTP
3.8	To check connectivity	H.	Transport Layer
3.9	Network Management Protocol	I.	DHCP
3.10	Reference Model	J.	TCP
		K.	OSI
		L.	Firewall
		M.	Application Layer

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

A.	Physical Layer	B.	FTP	C.	MAC address
D.	Switch	E.	53	F.	ICMP
G.	Data Link Layer	H.	Router	I.	Network Layer
J.	25	K.	ISO standards	L.	443
M.	World Wide Web (WWW)				

- 4.1 Open System Interconnections (OSI) is a network architecture model based on the _____.
- 4.2 CSMA/CD Protocol is implemented in the layer _____.
- 4.3 ICMP Protocol is implemented in the layer _____.
- 4.4 HTTP Protocol which defines the set of rules and standards on how the information can be transmitted on the _____.
- 4.5 Default port of SMTP is _____.
- 4.6 Default port of HTTPS is _____.
- 4.7 The _____ is a networking device used for connecting two or more network segments.
- 4.8 _____ is a network-level protocol used to convert the logical address i.e. IP address to the device's physical address i.e. MAC address.
- 4.9 _____ is a network device used at Data Link Layer.
- 4.10 Default port of DNS is _____.

PART TWO

(Answer any FOUR Questions)

5. (a) Differentiate between TCP and UDP.
(b) Compare hub and switch.
(c) Differentiate OSI Reference Model with TCP/IP Reference Model. **(4+4+7)**
6. (a) What is an IPv4 address ? What are the different classes of IPv4 ?
(b) Explain the following terms :
(i) Routing
(ii) Forwarding
(c) Explain different types of Networks. **(7+4+4)**
7. (a) What do you mean by transmission impairment ? Explain each of them in brief.
(b) Explain the terms : Transmission Delay, Propagation Delay and Queuing Delay.
(c) Explain the role of Proxy Server in the Network Management. **(6+6+3)**
8. (a) Describe basics of congestion in network and explain various congestion control techniques.
(b) Explain the difference between following multiplexing techniques.
(i) Frequency Division Multiplexing (FDM)
(ii) Time Division Multiplexing (TDM). **(9+6)**

9. (a) Explain Dijkstra's shortest path algorithm with suitable example. What is the role of the algorithm in Network Management ?
(b) For the following IP Addresses, identify the Class and Network IP Address with reason/justification. **(8+7)**
(i) 1.2.3.4
(ii) 10.15.20.60
(iii) 130.1.2.3
(iv) 150.0.150.150
(v) 200.1.10.100
(vi) 220.15.1.10
(vii) 250.0.1.2

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SPACE FOR ROUGH WORK

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