

A9.3-R5 : NETWORK MANAGEMENT

अवधि : 03 घंटे

DURATION : 03 Hours

अधिकतम अंक : 100

MAXIMUM MARKS : 100

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| ओएमआर शीट सं. : | | | | | |
| OMR Sheet No. : | | | | | |

रोल नं. :

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उत्तर-पुस्तिका सं. :

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Answer Sheet No. :

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परीक्षार्थी का नाम :

Name of Candidate :

परीक्षार्थी के हस्ताक्षर :

;Signature of Candidate :

परीक्षार्थियों के लिए निर्देश :

Instructions for Candidate :

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| कृपया प्रश्न-पुस्तिका, ओएमआर शीट एवं उत्तर-पुस्तिका में दिये गए निर्देशों को ध्यानपूर्वक पढ़ें। | Carefully read the instructions given on Question Paper, OMR Sheet and Answer Sheet. |
| प्रश्न-पुस्तिका की भाषा अंग्रेजी है। परीक्षार्थी केवल अंग्रेजी भाषा में ही उत्तर दे सकता है। | Question Paper is in English language. Candidate can answer in English language only. |
| इस मॉड्यूल/पेपर के दो भाग हैं। भाग एक में चार प्रश्न और भाग दो में पाँच प्रश्न हैं। | There are TWO PARTS in this Module/Paper. PART ONE contains FOUR questions and PART TWO contains FIVE questions. |
| भाग एक "वैकल्पिक" प्रकार का है जिसके कुल अंक 40 हैं तथा भाग दो "व्यक्तिपरक" प्रकार का है और इसके कुल अंक 60 हैं। | PART ONE is Objective type and carries 40 Marks. PART TWO is Subjective type and carries 60 Marks. |
| भाग एक के उत्तर, ओएमआर उत्तर-पुस्तिका पर ही दिये जाने हैं। भाग दो की उत्तर-पुस्तिका में भाग एक के उत्तर नहीं दिये जाने चाहिए। | PART ONE is to be answered in the OMR ANSWER SHEET only. PART ONE is NOT to be answered in the answer book for PART TWO. |
| भाग एक के लिए अधिकतम समय सीमा एक घण्टा निर्धारित की गई है। भाग दो की उत्तर-पुस्तिका, भाग एक की उत्तर-पुस्तिका जमा कराने के पश्चात् दी जाएगी। तथापि, निर्धारित एक घंटे से पहले भाग एक पूरा करने वाले परीक्षार्थी भाग एक की उत्तर-पुस्तिका निरीक्षक को सौंपने के तुरंत बाद, भाग दो की उत्तर-पुस्तिका ले सकते हैं। | 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. |
| परीक्षार्थी, उपस्थिति-पत्रिका पर हस्ताक्षर किए बिना और अपनी उत्तर-पुस्तिका, निरीक्षक को सौंपे बिना, परीक्षा हॉल/कमरा नहीं छोड़ सकते हैं। ऐसा नहीं करने पर, परीक्षार्थी को इस मॉड्यूल/पेपर में अयोग्य घोषित कर दिया जाएगा। | 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. |
| प्रश्न-पुस्तिका को खोलने के निर्देश मिलने के पश्चात् एवं उत्तर लिखना आरम्भ करने से पहले उम्मीदवार जाँच कर यह सुनिश्चित कर लें कि प्रश्न-पुस्तिका प्रत्येक दृष्टि से संपूर्ण है। | After receiving the instruction to open the booklet and before starting to answer the questions, the candidate should ensure that the Question Booklet is complete in all respect. |

जब तक आपसे कहा न जाए, तब तक प्रश्न-पुस्तिका न खोलें।

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

PART ONE

(Answer all the questions)

- 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** A set of rules that governs data communication :

(A) Protocols
(B) Standards
(C) RFCs
(D) None of the above

- 1.2** This Layer is an addition to OSI model when compared with TCP/IP model :

(A) Application Layer
(B) Presentation Layer
(C) Session Layer
(D) Both Session and Presentation Layer

- 1.3** Physical layer provides :

(A) mechanical specifications of electrical connectors and cables
(B) electrical specification of transmission line signal level
(C) specification for IR over optical fiber
(D) all of the above

- 1.4** Which transmission media has the highest transmission speed in a network ?

(A) coaxial cable
(B) twisted pair cable
(C) optical fiber
(D) electrical cable

- 1.5** Which sublayer of the data link layer performs data link functions that depend upon the type of medium ?

(A) logical link control sublayer
(B) media access control sublayer
(C) network interface control sublayer
(D) none of the above

- 1.6** ICMP is primarily used for :

(A) error and diagnostic functions
(B) addressing
(C) forwarding
(D) none of the above

- | | |
|---|---|
| <p>1.7 User datagram protocol is called connectionless because :</p> <ul style="list-style-type: none"> (A) all UDP packets are treated independently by transport layer (B) it sends data as a stream of related packets (C) it is received in the same order as sent order (D) none of the above | <p>2. Each statement below is either TRUE or FALSE. Choose the most appropriate one and ENTER in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)</p> |
| <p>1.8 Which one of the following is a version of UDP with congestion control ?</p> <ul style="list-style-type: none"> (A) stream control transmission protocol (B) datagram congestion control protocol (C) structured stream transport (D) none of the above | <p>2.1 When a client browser requests a web page and the page is sent back, a direct physical connection between client and server is formed while the information is being sent.</p> |
| <p>1.9 Which is not an application layer protocol ?</p> <ul style="list-style-type: none"> (A) HTTP (B) SMTP (C) FTP (D) TCP | <p>2.2 When an email message is sent, it is broken into several small pieces that can take very different routes to reach the destination.</p> |
| <p>1.10 Who has the responsibility of billing and system maintenance function in cellular system ?</p> <ul style="list-style-type: none"> (A) Base Station (B) PSTN (C) Mobile Switching Centre (D) Mobile System | <p>2.3 IPv4 address is composed of 4 bytes.</p> |
| | <p>2.4 A hub connects two different LANs.</p> |
| | <p>2.5 A bit is the smallest unit of information that a computer can work with.</p> |
| | <p>2.6 A TCP transmitter normally interprets three duplicate ACKs to mean that, while data packets have been received out of order, all data is successfully being delivered.</p> |
| | <p>2.7 Circuit switched networks run over the public switched telephone networks operated by the common carriers.</p> |
| | <p>2.8 FTP is transport layer protocol.</p> |
| | <p>2.9 MAC address is of 46 bits.</p> |
| | <p>2.10 Datagrams are connection-oriented.</p> |

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 | Wi-Fi | A. | 802.3 |
| 3.2 | Ethernet | B. | Transport Layer |
| 3.3 | Reliable process to process message delivery | C. | 802.11 |
| 3.4 | Transmission of a bit stream across a physical medium | D. | Fetching mails from the mail server to a user's computer |
| 3.5 | Radio wave | E. | 32 bits |
| 3.6 | HTTP | F. | Physical Layer |
| 3.7 | POP3 | G. | Network Layer |
| 3.8 | IPv6 | H. | Wireless media |
| 3.9 | IPv4 | I. | Application Layer Protocol |
| 3.10 | Routing | J. | 128 bits |
| | | K. | DNS |
| | | L. | Switch |
| | | M. | Hub |

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 attached to the question paper, following instructions therein. (1x10)

| | | | | | | | |
|----|-------------------|----|---------------------------------------|----|---------------|----|----------|
| A. | $n(n-1)/2$ | B. | Message | C. | ARP | D. | 2^{24} |
| E. | Application Layer | F. | Binary exponential back-off Algorithm | G. | Router | H. | 2^{21} |
| I. | Session Layer | J. | Full | K. | Exponentially | L. | $n(n-1)$ |
| M. | Half | | | | | | |

- 4.1 A _____ is a device that forwards packets between networks by processing the routing information included in the packet.
- 4.2 In OSI model, when data is sent from device A to device B, the 5th layer to receive data at B is _____.
- 4.3 SMTP is _____ layer protocol.
- 4.4 Number of links to connect n nodes in a mesh topology is _____.
- 4.5 To achieve stability in CSMA/CD back-off scheme, a technique known as _____ is used.
- 4.6 In the IPv4 addressing format, the number of networks allowed under Class C addresses is _____.
- 4.7 The packet of information at the application layer is called _____.
- 4.8 Communication offered by TCP is _____ duplex.
- 4.9 In the slow-start algorithm, the size of the congestion window increases _____ until it reaches a threshold.
- 4.10 _____ protocol is used to map IP network addresses to the hardware addresses used by a data link protocol.

PART TWO

(Answer any FOUR questions)

5. (a) Differentiate between frequency division multiplexing and time division multiplexing.
- (b) Draw neat labelled diagram of TCP header and explain in detail.
- (c) Explain LAN, MAN and WAN with an example. **(4+8+3)**
6. (a) With a suitable example, describe Hamming error, detection and correction technique.
- (b) Differentiate between Link state routing and distance vector routing.
- (c) Differentiate between various layers of OSI Reference Model and TCP/IP Protocol Model. **(4+5+6)**
7. (a) Define Subnetting.
- (b) Explain the difference between CSMA/CD and CSMA/CA.
- (c) What are the responsibilities of Application Layer ? **(3+8+4)**

8. (a) What are the different type of networking/internetworking devices ?
- (b) Write short note on FTP. What is the difference between TFTP and FTP application layer protocols ?
- (c) What are differences between ARP and RARP ? **(5+5+5)**
9. (a) What is STAR network topology ? Write advantages and disadvantages of STAR topology.
- (b) Differentiate between flow control and congestion control mechanism.
- (c) Differentiate between 3G and 4G mobile generation technology. **(4+6+5)**

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SPACE FOR ROUGH WORK

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