Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 87525

M.C.A. DEGREE EXAMINATION, FEBRUARY 2012.

Elective

DMC 1972 — TCP/IP PROTOCOL SUITE

(Regulation 2009)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Draw layered architecture of OSI model.

2. Differentiate hub from switch.

3. What are default mask and subnet mask?

4. What is the size of an ARP packet when the protocol is IP and the hardware is Ethernet?

5. Define port number and socket address.

6. What do you mean by three way handshaking?

7. Expand and define BOOTP.

8. Differentiate PQDN from FQDN.

9. What is anonymous FTP?

10. What is MIB?

PART B — (5 × 16 = 80 marks)

11. (a) Explain briefly about Addressing. (16)

Or

(b) Describe wired LAN in detail. (16)

12. (a) Discuss briefly about routing. (16)

Or

(b) Explain ICMP in detail. (16)

13. (a) Describe the following :

(i) TCP segment format. (8)

(ii) TCP services. (8)

Or

(b) With a neat sketch, explain TCP state transition diagram. (16)

14. (a) Briefly explain about DHCP. (16)

Or

(b) Explain the following :

(i) Remote login. (8)

(ii) Network Virtual Terminal. (8)

15. (a) Write about Simple Network Management Protocol. (16)

Or

(b) Explain briefly about Hyper Text Transfer Protocol. (16)

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Reg. No. : | | | | | | | | | | | |

Question Paper Code : 85818

M.C.A. DEGREE EXAMINATION, FEBRUARY 2011.

Elective

DMC 1972 — TCP/IP PROTOCOL SUITE

(Regulation 2009)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Identify the address class of the following IP address and convert to binary notation :

   200.58.20.165 ; 16.196.128.50

2. Differentiate between datagram, PDU and packet.

3. A university has 150 LANs with 100 hosts in each LAN. Suppose the university has one Class B address. Form an appropriate subnet addressing scheme.

4. What is the use of a ARP cache?

5. A host has IP address 11 and process port P1. Another host has IP address 12 and Process port P2. Can multiple TCP connection be established between two ports simultaneously?

6. What is the use of encapsulation/decapsulation and multiplexing/demultiplexing in TCP?

7. When a BOOTP client receives a reply via hardware broadcast? How does it know whether the reply is intended for another BOOTP client on the same physical net?

8. Consider a host that has a disk and uses DHCP to obtain an IP address. If the host stores its address on disk along with the date and lease expires, and then reboots within the lease period, can it use the address? Why or Why not?

9. Differentiate between the functionalities of the user agent and mail transfer agents in SMTP.

10. What is a transaction?

PART B — (5 × 16 = 80 marks)

11. (a) Discuss OSI model with TCP/IP protocol suite. Describe in detail the activities to be performed at every layer in the TCP model when information flows from one layer to another layer.

Or

(b) (i) Distinguish between Cascaded Hub network, Half Duplex and Full Duplex Ethernet Hubs and Switching Hubs. Suggest a suitable application where each can be used. (8)

(ii) What is the purpose of a bridge? Explain the functionality of a bridge with the help of an example. (8)

12. (a) What is address resolution? Describe ARP and RARP with illustrations.

Or

(b) (i) Discuss in detail any two routing models. (8)

(ii) An internetwork consists of routers *A*, *B*, *C*, *D*, *E* and *F*. The forwarding tables of routers *A* and *F* are shown in the following tables. The cost metric is hop-count. Draw the internetwork consistent with the forwarding tables. (8)

Router *A*

Destination Router	Cost	Next hop
B	1	*B*
D	1	*D*
C	2	*B*
E	3	*D*
F	2	*D*

Router *B*

Destination Router	Cost	Next hop
A	2	*D*
B	3	*D*
D	1	*C*
C	2	*D*
E	1	*E*

13. (a) (i) TCP opens a connection using an initial sequence number (ISN) of 14,137. The other party opens the connection with an ISN of 18,332. Show the three TCP segments during the connection establishment. (8)

(ii) A TCP connection is using a window size of 12,000 bytes, and the previous acknowledgement number was 22,001. It receives a segment with acknowledgement number 24,001 and window size advertisement of 12,000. Draw a diagram to show the situation of the window before and after. (8)

Or

(b) How does TCP handle the flow control problem? Explain it with the help of a diagram showing the status of sliding window at the different stages.

14. (a) Explain the function of DHCP protocol with respect to DHCP server and DHCP enabled client communication.

Or

(b) Describe the components, functionality and operation of the following with illustrations

(i) DNS (8)

(ii) Rlogin. (8)

15. (a) What is SNMP? List down the SNMP services and explain the server support for each.

Or

(b) (i) What are the different phases of mail transfer? (8)

(ii) How are Request messages handled by HTTP? (8)

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Question Paper Code : 86510

M.C.A. DEGREE EXAMINATION, FEBRUARY 2012.

Elective

DMC 1627 — TCP/IP PROTOCOL SUITE

(Regulation 2007)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State the need for addressing in internetworking.

2. Compare the functionality of a Switch and a hub.

3. Why checksum is needed in Protocol headers?

4. State the role of ICMP.

5. Compare flow control and congestion control in a network.

6. Specify the TCP 3-way handshake connection establishment diagram.

7. Compare BOOTP with DHCP.

8. What is the role of DNS?

9. How reliability is provided for HTTP transactions?

10. Why FTP has two port numbers? How these two port numbers are used?

PART B — (5 × 16 = 80 marks)

11. (a) Discuss the main functionalities of OSI model layers in detail. (16)

Or

(b) Explain the functionalities of various internetworking devices in detail. Compare twisted pair with Co-axial cable in terms of its structure and functionality. (16)

12. (a) (i) Discuss about the Fragmentation and Reassembly process in IP. (10)

(ii) Draw the format of IP header and explain IP options field. (6)

Or

(b) (i) Discuss in detail about any two ICMP messages with their format. (8)

(ii) How routing is carried out in IP? (8)

13. (a) Explain the TCP flow control and error control with examples. (16)

Or

(b) Explain the various congestion control mechanisms in TCP. (16)

14. (a) (i) Draw the format of BOOTP. Explain the various fields. (8)

(ii) Explain the operation of DNS in detail. (8)

Or

(b) Write notes on :

(i) Remote Login. (8)

(ii) DHCP. (8)

15. (a) Explain in detail about the functionalities of SMTP. Specify the flow of SMTP commands between the client and the server. (16)

Or

(b) Write notes on :

(i) FTP. (8)

(ii) SNMP. (8)

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Question Paper Code : 85710

M.C.A. DEGREE EXAMINATION, FEBRUARY 2011.

Elective

DMC 1627 — TCP/IP PROTOCOL SUITE

(Regulation 2007)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the need for host and network portion in an IP address?

2. State the functionalities of switch and hub.

3. How subnetting reduces the number of nodes per network?

4. What is the role of ICMP?

5. Compare flow control and congestion control in a network.

6. Draw the state transition diagram for TCP connection termination.

7. List down the resource records in DNS.

8. State the functionality of DHCP.

9. Why FTP has two port numbers? How these two port numbers are used?

10. List the various SNMP PDUs. Specify the syntax for any one of them.

PART B — (5 × 16 = 80 marks)

11. (a) Explain in detail about the functionalities, specifications, advantages and disadvantages of various transmission media. (16)

Or

(b) Explain the functionalities of various interconnection devices in detail. Specify the layers upon which these devices operate. (16)

12. (a) (i) Draw the format of ARP and RARP packet and explain all the fields in detail. (12)

(ii) Draw the format of IP header. (4)

Or

(b) Discuss in detail about any four ICMP messages with their format. (16)

13. (a) Explain the functionalities of TCP. State the reasons for the variable field length of TCP header. (16)

Or

(b) Explain the various congestion control mechanisms in TCP. (16)

14. (a) (i) Draw the format of DHCP. Explain the various fields. (8)

(ii) Explain the operation of DNS in detail. (8)

Or

(b) Write notes on :

(i) TELNET. (8)

(ii) Network Virtual Terminal. (8)

15. (a) Explain in detail about the functionalities of SMTP. Specify the flow of SMTP commands between the client and the server. (16)

Or

(b) Write notes on :

(i) HTTP. (8)

(ii) SNMP. (8)

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Question Paper Code : YY 2512

M.C.A. DEGREE EXAMINATION, FEBRUARY 2010.

Elective

DMC 1627 — TCP/IP PROTOCOL SUITE

(Regulation 2007)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. How does a switch differ from a hub?

2. Find the class, the block and range of the address for the network address 220.34.76.0.

3. Define ARP and RARP.

4. What are the four components of router?

5. What is the maximum size of the TCP header?

6. What are the two factors that measure the performance of a network?

7. Define DHCP.

8. Define TELEET. Explain the security issue of telnet.

9. Define SNMP.

10. What is the use of HTTP?

PART B — (5 × 16 = 80 marks)

11. (a) Explain the various connecting devices in detail. (16)

Or

(b) Discuss IP addressing in detail. (16)

12. (a) What is meant by address resolution problem? What are the issues in ARP implementations explain in detail? Discuss. (16)

Or

(b) Illustrate the process of IP fragmentation and reassembly in detail. (16)

13. (a) Draw the TCP finite state machine diagram and illustrate the transitions between various states. (16)

Or

(b) Write short notes on :

(i) Flow control (4)

(ii) Error control (6)

(iii) Congestion control. (6)

14. (a) Discuss the features of BOOTP in detail. (16)

Or

(b) Write short notes on :

(i) Domain Name System (DNS) (8)

(ii) Network Virtual Terminal. (8)

15. (a) How does TCP handle time out and retransmission? How does it respond to high variance and delay? Explain in detail. (16)

Or

(b) Write short notes on :

(i) Simple Mail Transfer Protocol (SMTP) (8)

(ii) File Transfer Protocol (FTP). (8)
