(Please Write your Exam Roll No. immediately) Exam. Roll No. ……..

END-TERM EXAMINATION

DECEMBER 2006

Exam Series code: 100468DEC06200513

Paper Code : MCA-309 **Subject: Advance Computer Network**

Time: 3 Hours **Maximum Marks: 60**

Note: Question 1. is compulsory and attempt four from Q.2 to Q.8 selecting one from each unit.

Q. 1. Answer the following : **(5 x 4 = 20)**

(a) What are the seven layers of the OSI Model?

(b) Which layer determines path selection in an internet work?

(c) What is one method mapping network addresses to MAC addressed?

(d) Which includes more overhead, connection-oriental or connectionless service?

(e) What is the purpose of exchanging beginning sequence during the connection in the TCP client server model?

UNIT - I

Q. 2. (a) Explain the format of 802.3 MAC frame? **(6)**

(b) Explain leaky bucket algorithm. **(4)**

Q. 3. (a) What are some of the problems associated with operating a switched LAN? **(6)**

(b) What sort of cabling is suitable for fast Ethernet protocols? Write their data rates. **(4)**

UNIT - II

Q. 4. (a) Briefly explain the error message in ICMP. **(6)**

(b) Write the difference between IPV4 and IPV6. **(4)**

Q. 5. (a) Explain the working of RARP. **(4)**

(b) Write the commands for configuring the router for giving address to various interfaces. Give commands for establishing connection between two networks & communicating between them using some protocol. Save the configuration. Write commands for seeing other commands. How will you give password to a router? **(6)**

UNIT - III

Q. 6. (a) What is the difference between TCP and UDP? **(4)**

(b) What is the difference between a Hub, switch and router? **(6)**

Q. 7. Explain the TCP segment format in details. **(10)**

UNIT - IV

Q. 8. (a) Discuss Firewall in detail? **(6)**
(b) Explain the photocod pretty good policy (PGP). **(4)**

Q. 9. Write notes on following:- **(2.5 x 4 = 10)**

(i) DNS
(ii) RMON
(iii)WWW
(iv)SNMP

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END-TERM EXAMINATION

Fifth Semester [MCA] - DECEMBER 2005

Paper Code: MCA-303 **Subject: Advance Computer Networks**

Time: 3 Hours **(Batch – 2001, 2002 & 2003)** **Maximum Marks: 60**

Note: Q. 1 is compulsory and attempt any four from Q. 2 to Q. 8

Q. 1. Answer the following: **12**

(a) What is the size of an ARP packet when the protocol is IP and hardware is Ethernet?
(b) Compare the TCP header and UDP header
(c) Compare IPV4 with IPV6
(d) Using the RSA algorithm, encrypt the message "BE" with key pairs (3,15) and (5, 15).
(e) Briefly explain the Router configuration.
(f) What are the conditions under which no ICMP error messages are generated?

Q. 2. (a) Explain the TCP segment format in details. **9**

(b) Explain the various roles played by the Data Link Layer. **3**

Q. 3. (a) Explain the problems of two node instability in distance vector routing. Show ways to remove it. **4**

(b) A company is granted site address 193.116.5.0. The company needs nine subnets. Design the subnets. **3**

(c) Explain the types of BGP messages. Explain the various fields involved. **5**

Q. 4. (a) Explain fragmentation in IP using an example. **5**

(b) Explain the various query messages in ICMP. Also draw and explain the packet formats. **7**

Q. 5. (a) What are the various data link protocols? Explain HDLC protocol in detail. What are ways in which the S-frame could be used? **8**

(b) Write a note on RMON. **4**

Q. 6. (a) Draw and explain packet format of ARP. **3**

(b) Describe the various links in OSPF. **3**

(c) Explain congestion control in TCP. **6**

Q. 7. (a) Explain the format of 802.3 MAC frame. **4**

(b) Explain Network address translation. **4**

(c) What is fragmentation offset? A packet has arrived with an M bit value of 1 is this the first fragment, the last fragment, or a middle fragment. **4**

Q. 8. (a) Explain the application adaptation layer in ATM. **5**

(b) Explain the difference between process to process communication and port-to-port communication. What are socket addresses and types of ports? Explain Querying in UDP. **7**

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END-TERM EXAMINATION

Fifth Semester [MCA] - DECEMBER 2004

Paper Code: MCA-303 Subject: Advance Computer Networks/ Network Technologies

Time: 3 Hours **Maximum Marks: 60**

Note: Attempt any five questions.

Q. 1. (a) Discuss the header of the Internet Protocol (IP). Explain how fragmentation is done in IP with the help of an example. What is the need of fragmentations? **6**

(b) What is meant by three way handshaking mechanism in TCP? How is three way handshaking mechanisms different from four-way handshaking? **6**

Q. 2. (a) What are the various components of a CISCO Router? Explain them briefly. **4**

(b)What is a Virtual Private Network (VPN)? Discuss. **4**

(c) What do you mean by security at the transport layer? Explain the transport layer security (TLS). **4**

Q. 3. (a) How is "Go-Back N ARQ" better than "Stop and Wait ARQ". Justify with help of an example. **6**

(b) How is the OSI Reference model different from the TCP/IP protocol suite? Explain with the help of clear diagrams. **6**

Q. 4. (a) An organization is granted network address 201.70.64.0. The organization needs six subnets. Explain the following: **10**

(i) What is the subnet mask?
(ii) How many hosts are created per subnet?
(iii) How many usable hosts and subnets are created?
(iv) Give the first two and the last two created subnets.
(v) How do you get a broadcast address for a subnet? Give example.

(b) A small organization is given a block with the beginning address and the prefix length 205.16.37.24/29 (in slash notation). What is the range of the block? **2**

Q. 5. (a) What is proxy ARP? Explain with the help of an example. **4**

(b) Explain any two ICMP error messages. **2**

(c) Draw the header of the UDP (User Datagram Protocol). **4**

(d) What is socket address? What do you understand by ephemeral ports and well known ports? **2**

Q. 6. (a) What are the problems associated with RIP? How can these problems be overcome. Explain with the help of example. **6**

(b) Explain the DNS (Domain Name System) protocol in details. **6**

Q. 7. (a) What are the two protocols used by SNMP for its management functions. Explain both of them briefly. **6**

(b) Describe the multipurpose Internet Mail Extension. **4**

(c) What is Network address Translation? Explain with the help of an example. **2**

Q. 8. Write short notes on any three of the following:- **12**

(i) IPV6
(ii) HTTP
(iii) Datalink layer in the Internet
(iv) OSPF
(v) Congestion control mechanism
(vi) CIDR

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END-TERM EXAMINATION

Fifth Semester [MCA] - DECEMBER 2002

Paper Code: MCA-303 Subject: Advance Computer Networks/ Network Technologies

Time: 3 Hours **Maximum Marks: 60**

Note: Attempt any six questions. Q. 1 is compulsory

Q. 1. Describe the following in brief:- **2 x 10**

(a) Gateway and Backbone
(b) CIDR
(c) RMON
(d) Security of a Network
(e) Proprietary and Non-Proprietary Protocols
(f) Encryption and Decryption
(g) RARP
(h) DNS
(i) POP
(j) CGI

Q. 2. (a) Differentiate between Internet and Intranet. Also list various protocols applicable to different OSI layers. **4**

(b) Describe Internet Address in detail. Describe classification of IP Addresses. Why do you need subnetting and how do you implement it. **4**

Q. 3. (a) Differentiate between Unicast, Multicast and Broadcast. Also describe advantages of multicast over broadcast. **4**

(b) Why do you need to compress data? Describe a few methods of data compression. **4**

Q. 4. (a) List down all protocols applicable to Transport layer of a network. Also explain various services provided by these protocols. **4**

(b) Describe important features of ATM communication technology. **4**

Q. 5. (a) Describe in details the structure and functioning of an ATM network. **4**

(b) Explain in detail Dijkstra algorithm for computation of a routing table. **4**

Q. 6. (a) Differentiate between LAN, WAN and MAN. **3**

(b) What is the need for PPP? Discuss its implementation and related protocols in detail. **5**

Q. 7. (a) Describe the framework for managing devices in an Internet using the TCP/IP protocol suite. **4**

(b) What do you understand by the term e-mail? List all applicable protocols and their distinguishing characteristics. **4**

Q. 8. (a) Write specific characteristics of Multicast application. Also list a few applications of multicast. **3**

(b) Discuss importance of Network Security issues. Also discuss three authentication algorithms. **5**

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END-TERM EXAMINATION

Fifth Semester [MCA] - DECEMBER 2001

Paper Code: MCA-303 **Subject: Networks Technology**

Time: 3 Hours **Maximum Marks: 60**

Note: Q. No. 1 is compulsory. Attempt any four questions from the rest

Q. 1. Attempt any ten:- **2 x 10**

(a) Which of the OSI layers handles each of the following:
   i. Braking the transmitted bit stream into frames
   ii. Determining which route through the subnet to use.

(b) If a binary signal is sent over a 3 kHz channel whose signal to noise ratio is 20 dB, what is the maximum achievable data rate?

(c) How big is the LAN address space? The IPV4 address space? The IPV6 address space.

(d) ARP and RARP both map addresses from one space to another. In this respect they are similar. However their implementations are fundamentally different. In what major way do they differ?

(e) What are different classes of IP addresses?

(f) Why is subnetting done in a network? Does it have any effect on routing of packet? Explain.

(g) Give two example application for which connection oriented services is appropriate. Now give two examples for which connection-less service is best.

(h) Draw a diagram showing the layout of a TCP segment.

(i) Write the description of the following states used in TCP connection management.
   (i) Last ACK (ii) SYN RCVD

(j) Which protocol is used to fetch e-mail from mailbox?

(k) What is an important difference between a symmetric key system and a public key system?

Q. 2. (a) List two ways in which the OSI reference model and the TCP/IP reference model are the same. Now list two ways in which they differ. **5**

(b) What are the two reasons for using layered protocols? **2**

(c) Why is the ARP query sent within a broadcast frame? Why is an ARP response sent within a frame with a specific destination LAN address? **3**

Q. 3. (a) Compare and contrast IPV4 and IPV6 header fields. Do they have any fields in common? **4**

(b) Compare and contrast link-state and distance vector routing algorithms. **6**

Q. 4. (a) Replacing a multiplexer that uses time division multiplexing with one that uses Frequency Division Multiplexing can improve throughout. Explain why? **4**

(b) Distinguish between:- **4**
   (i) Bridges and Routers

(ii) Transport Gateways and Application Gateways

(c) Name the services that operate in **2**
(i) Network layer
(ii) Physical layer

Q. 5. (a) What are three main aspects of network security? Briefly explain each of them. **6**

(b) When web pages are sent out they are prefixed by MIME headers. Why? **4**

Q. 6. Write short notes on any two of the following:- **10**
(i) Firewalls
(ii) Virtual Public Networks
(iii) DNS
(iv) SNMP
