

Name \_\_\_\_\_

**CS4514 C04  
Computer Networks  
Final Exam  
March 4, 2004**

<b>Question</b>	<b>Points</b>	<b>Score</b>
<b>0</b>	<b>1</b>	
<b>1</b>	<b>4</b>	
<b>2</b>	<b>5</b>	
<b>3</b>	<b>2</b>	
<b>4</b>	<b>6</b>	
<b>5</b>	<b>7</b>	
<b>6</b>	<b>8</b>	
<b>7</b>	<b>10</b>	
<b>8</b>	<b>7</b>	
<b>9</b>	<b>9</b>	
<b>10</b>	<b>5</b>	
<b>11</b>	<b>7</b>	
<b>12</b>	<b>10</b>	
<b>13</b>	<b>5</b>	
<b>14</b>	<b>7</b>	
<b>15</b>	<b>8</b>	
<b>Total</b>	<b>100</b>	

**Trivia Question (1 extra credit point)**

0a. Name the sites of the 2004 Republican and Democratic National Conventions.

**OR**

0b. Name the site of the 2004 Men's NCAA Basketball Final Four.

(4 pts) 1. Explain the **Go Back N** algorithm.

(5 pts) 2. Explain how the **relative propagation time** affects performance for an **Ethernet hub**.

(2 pts) 3. What is the difference between **I, the Input Load**, and **G, the Offered Load** in the historic queuing model used to analyze **LAN** performance.

(6 pts) 4. Explain the difference between **p-persistent** and **non-persistent CSMA**.

(4 pts) 5a. Describe a **1BASE5 LAN**.

(3 pts) 5b. What are the advantages of this **LAN** technology.

(6 pts) 6a. Explain how a simple **bridge** works. In what topologies does a simple **bridge** not work?

(2 pts) 6b. How does a **source-routing bridge** work?

(3 pts) 7a. How does a **FDDI ring** handle the token?

(7 pts) 7b. Why can a **FDDI ring** not use **differential Manchester** encoding?  
Explain what it does instead to transmit at **100 Mbps**.

(7 pts) 8. Explain the operation of a **buffered distributor** in **Gigabit Ethernet**.

(5 pts) 9a. Explain the **hidden terminal problem** in wireless **LANs**.

(4 pts) 9b. How does **MACA** solve this problem?

(5pts) 10. Explain the circumstances under which **fragmenting wireless frames** can improve performance.

(4 pts) 11a. Explain the relationship between **SONET** and **ATM switches**.

(3 pts) 11b. Why did the phone companies introduce **SONET**?

(10 pts) 12. Explain how a subnet made up of **only ATM switches** operates. (Include a discussion of how a flow is established and what the **ATM switch** does with arriving **cells**.)

(5 pts) 13. What are the problems with **centralized routing**?

(7 pts) 14. Explain how **OSPF** handles **link state routing**.

(8 pts) 15. Explain the difference between **the slow start phase** and **the congestion avoidance phase** for a **TCP source**.