

# Final Exam CSCI 363 Fall 2001

## Closed Book Section

13 December, 2001

Name: \_\_\_\_\_

This exam has a closed book and an open book section. Until you have turned in the closed book section, you are not allowed to use any resource materials: books, notes, or calculators.

Be sure to show your work in order to get full credit for the problem. When possible place your answers in the provided boxes. There are 13 questions for a total of 65 points on the closed book section of the quiz.

This exam is to be turned in by 2:45 pm.

### **Problem 1 (6 points)**

Wyonna wishes to send Naomi an authenticated and private **short** message using a public key encryption system. How does she do this?

You may assume the message is so short that it does **not** require the use of message digests and session keys. Be sure to write something that resembles a mathematical equation in your answer.

### **Problem 2 (6 points)**

Now Wyonna wishes to send Naomi an authenticated and private **long** message using a public key encryption system. How does she do this?

This time assume the message is so long that message digests and session keys are required to efficiently perform this task.

**Problem 3 (4 points)**

Which of the following four are reasonable IPv4 host numbers represented in dotted decimal notation? Circle those that are reasonable and cross out those that are *not*.

152.18.32

100.150.200.250

100.200.300.400

252.252.252.252

**Problem 4 (4 points)**

Suppose 80.80.80.80/26 represents an IPv4 network. What is the mask of this network?

**Problem 5 (9 points):**

Choose **six** of the following twelve acronyms or abbreviations and state what each abbreviates.

Write your six choices in the left column and the related abbreviations in the right.

ARP

IP

PGP

POP

RSA

RSVP

RTP

RTSP

SMTP

SSL

TCP

UDP

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**Problem 7 (6 points)**

Why is UDP often the preferred transport protocol for multimedia applications?

**Problem 8 (3 points)**

Name two common compression schemes used in multimedia networking.

**Problem 9 (3 points)**

When you use a dial-up modem, which link layer protocol does your home computer use?

**Problem 10 (6 points)**

Describe two techniques that can be used in multimedia networking to deal with lost packets.

**Problem 11 (6 points)**

Why is streaming more appropriate for transmitting a 1 Mbyte audio file than it is for transmitting a 1 Mbyte image file?

**Problem 12 (6 points)**

Computer viruses have sometimes used “buffer overflows” to infect servers. What is a buffer overflow and how can a buffer overflow change the behavior of a server?

**Problem 13 (6 points)**

Suppose a UNCA was concerned that faculty were shopping on-line rather than grading exams. Could this problem be “solved” by installing a firewall? Justify your answer.