There are five questions; answer all of them. If you need to make an assumption to clarify a problem, write your assumption down. Only reasonable assumptions get full credit. Explain all answers. You have seventy five minutes to finish the exam; and the exam is worth seventy five points. The questions are of varying difficulty; so it is probably advisable to answer the easier questions first to avoid getting stuck on the harder ones. Good Luck!

1. Name your favourite collaborative application. (1 pt.)

2. Beyond Being there (15 pts.)
One of the goals of CSCW to take users beyond what is possible by being there in one location. Give five distinct ways in which this goal is met by the collaborative applications you have used or studied.

3. Being there (15 pts.)
The dual goal, of course, is to transport them to a common space, giving them the illusion of being there at a single location. Give three different degrees of transportation supported by collaborative applications and order them according to the transportation degree.

4. Concurrent asynchronous IM (15 pts.)
One of the trickiest issues in the design of collaborative application is asynchronous concurrent input - a user entering input without seeing the results of one or more users entering input at the same time.

(a) Explain, giving an example, why this can be a problem in a traditional instant messenger application such as NetMeeting chat.

(b) Give one way in which this problem has been addressed by a research collaborative application.

(c) Identify any disadvantages of the solution given in (b).

5. Concurrent asynchronous drawing (29 pts.)
Now consider concurrent input in an application that allows users to edit a shared drawing.

(a) Give a scenario in which this does not cause a problem.

(b) Give four features in collaborative applications you have studied or used that address this problem.

(c) For each of the features above, give any of its disadvantages.