

.CS564 & 646 Final Examination Spring 2006 Vn A -- 200 points max Name_____

Read this exam from beginning to end before you start. Write your answers on blank sheets of paper. There are 9 questions each worth a maximum of 25 points. Attempt every question and show your working. Please start each question on a new sheet of paper. Clearly **identify which question** you are answering. Credit will be given for incomplete answers and working. Show your working. Calculators OK. A single 11x8 inch cheat sheet can be used. Computers or wireless communications forbidden.

All the answers are long answers. When asked to *define* something, write the formal mathematical definition from our text or website. If your definition is from a different source give the source. A *description* is more informal than a definition. A *name* is the word, acronym or short phrase we use in place of a complex description or definition.

1. Turing Machines (TM) and Languages

1a. ...

9. Applications and implications

9a....

2. Restricted and/or extended Turing Machines

2a. ...

3. Recursive languages and Complexity

3a. ...

4. Undecidable problems, RE languages, reduction

4a....

5. Intractable Problems, P, NP, ...,

5a. ...

6. NP-Completeness, Polynomial reduction,

6a....

7. Co-NP, PS

7a....

8. Randomization

8a....

