

**ICS 132: Organizational Information Systems**  
**Midterm Exam**  
**Winter 2003**

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

Answer all questions.

The questions for this exam are based on the accompanying article, taken from the December 17, 2002 edition of the New York Times.

1. According to Bakos and Treacy's model of competition, one feature of a transition from paper to electronic journals is a redistribution of the bargaining power between publishers and authors (who submit their work for publication).

What is meant by Bargaining Power in their model? (2 pts)

Name and explain the factors contributing to bargaining power? (6 pts)

Provide and explain two examples of the ways in which electronic publishers may have a competitive advantage over paper-based publishers, according to Bakos and Treacy's model. (4 pts)

2. Journals generally have a process for managing the process of submission, review, and publication. Normally, articles are sent to three or four members of the scientific community for review; each one returns a set of comments and a recommendation on whether the article should be accepted for publication. The article may be returned to the authors for revision and re-review, until it is deemed acceptable, and published. This process is often regulated by a formal workflow system.

In what ways does a workflow system assist an organization in self-monitoring?  
(2 pts)

Which two aspects of competitive advantage can be achieved through the use of workflow systems? (4 pts)

One problem setting up a workflow system for journal reviewing is that many of the people involved (authors, reviewers, etc.) are not part of the publishing organization. (Reviewers and associate editors tend to be volunteers and academics – like me, for example.) This makes it hard to achieve the centralization that we normally associate with workflow systems. What is the role of centralization in workflow? (2 pts)

3. The metaphor of an organization as an organism draws particular attention to how the organization's actions are shaped by the environment. Taking an online journal such as the Public Library of Science as an example, give two examples of what might be meant by "the environment", and for each one, suggest a way in which the journal has responded to it (or been shaped in response to it). (8 pts)

4. In a perfect market, prices are meant to be driven down to the “marginal cost of production.” What does this phrase mean? (2 pts)

What is the difference between the marginal cost of production of online and paper-based journal articles? (2 pts)

5. Consider a database to support the review process, initially designed as a single table with the following fields:

Paper title

Paper author #1 name

Paper author #1 address

Paper author #1 affiliation

Paper author #2 name

Paper author #2 address

Paper author #2 affiliation

Paper author #3 name

Paper author #3 address

Paper author #3 affiliation

Reviewer #1 name

Reviewer #1 address

Reviewer #1 recommendation

Reviewer #2 name

Reviewer #2 address

Reviewer #2 recommendation

Reviewer #3 name

Reviewer #3 address

Reviewer #3 recommendation

Date paper submitted

Date decision finalized

(“Recommendation” is like a grade – the reviewer’s recommendation of whether the paper should be accepted outright, accepted with minor revisions, rejected, reviewed again after major revisions, or submitted somewhere else.)

*Question continues on next page*

Show what this table would look like, at each stage, as it is transformed into (a) first, (b) second, and (c) third normal form. Indicate the key fields at each step. (8 pts)

*Question continues on next page*

ER models, on which databases of this sort are often based, allow for both single-valued (or “atomic”) and multi-valued attributes. Explain how the treatment of single-valued and multi-valued attributes differs when translating an ER model into a relational table. (4 pts)