

End-Semester Examination --April 2003.
Course Id: 17632 Information Systems and 406030 Information Systems Design

Number of Students: 17+15=32

Max. Marks = 80

Answer question numbers 1 & 2 and any six from the rest.
All parts of the same question must be answered together.

1. Multiple Choice [5X2 = 10 Marks]. For each question, write only the choice number in your answer sheet.

a. During a secure session between two parties, A and B, a message from A to B will be encrypted using:

- I. Public Key of A II. Private Key of A III. Public Key of B IV. Private Key of B

b. When a certificate authority (CA) like Verisign issues a digital certificate (DC) in favor of an organization O, they will:

- I. Put the public key of O in the DC and encrypt the certificate with the private key of CA
II. Put the private key of O in the DC and encrypt the certificate with the private key of CA
III. Put the public key of O in the DC and encrypt the certificate with the public key of CA
IV. Put the private key of O in the DC and encrypt the certificate with the public key of CA

c. ABC analysis and XYZ analysis are important analysis reports of a:

- I. Financial Accounting System II. Character Recognition System
III. Materials Management System IV. Maintenance Management System

d. Sensitivity analysis is most appropriately used in the context of

- I. A report to describe how sundry debtors pay up their dues in an accounting system
II. A drill-down ESS application that graphically displays employee's response to a policy change
III. A model that answers what-if questions in a DSS
IV. A knowledge work system

e. Which of the following structural organization changes brought about by Information Systems has the highest risk involved:

- I. Automation II. Reengineering III. Paradigm Shift IV. Reverse Engineering

2. [2+2+2+2+2=10 Marks] - The following questions (a-e) are expected to be answered with respect to your course project. If you do not remember/ nothing was done in your project, you may consider any hypothetical information system project.

- (a) Which risks were identified during the information system project that you did as part of this course?
(b) What were your contingency plans for these risks?
(c) How many of these risks materialized and what was their effect on your project delivery?
(d) Mention the configurable items you had in your project.
(e) What does an S-curve represent in an information system project?

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3. Assume that IIT Kharagpur is planning to extend its health care facilities by including ten hospitals in Kolkata in its network. Any IIT faculty, staff or student can visit these hospitals after prior approval of the Chief Medical Officer of the health centre located in the campus. A part of the bill will be directly settled at a pre-negotiated rate by IIT through its Kolkata centre. Another option is to tie up with a medical insurance company and share the premium with those who are interested in the scheme. More hospitals in several other locations will also be included in this plan in future. IIT is also wondering if it can reimburse annual medical bills of all retired employees subject to a maximum of 40% of their basic salary at the time of retirement. However, keeping track of the all the deals and bills is a big task that cannot be handled manually. Develop an Information System plan to serve this situation. **[10 Marks]**

4. Consider Capital Budgeting projects **A** and **B**, which yield the following cash flows over their five-year lives. The *cost of capital* for the project is 10%. **[5+3+2=10 Marks]**

- (a) Which one would you choose considering the Net Present Value?
- (b) Calculate the payback period for each of the projects.
- (c) Cost-benefit ratio for each of the projects.

	Project A	Project B
Year	Cash Flow (Rs.)	Cash Flow (Rs.)
0	-1000	-1000
1	500	100
2	400	200
3	200	200
4	200	400
5	100	700

5. **[3+2+2+3=10 Marks]**

- (a) In order to estimate the cost of an IS project, you estimated its size in Function Point as 4000. What are the other parameters you would need to arrive at the cost of the project? Assuming typical values of these parameters, estimate the total project cost.
- (b) What is information asymmetry?
- (c) Give three examples of information asymmetry.
- (d) Explain how information systems may be used to reduce information asymmetry.

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6. [2+2+2+2+2=10 Marks]

- (a) Assume that there are two organizations, A and B, visiting our institute for campus recruitment on May 4th, 2003. Organization A says that they were assessed at SEI CMM Level 4 in January, 2003 while organization B says that they were assessed at SEI CMM Level 4 in January, 2001. Which one is likely to provide you with a better environment as far as software quality process is concerned?
- (b) What extra do these organizations need to do to reach SEI CMM Level 5?
- (c) What are the advantages of prototyping approach over waterfall model of information systems development?
- (d) What are the steps in a prototyping approach to system development?
- (e) What are the different types of prototypes that may be used in an information system development?

7. [5+5=10 Marks]

- (a) A trading house is importing some materials from Australia for which the payment has to be made in Australian Dollar (AUD). The materials will arrive 45 days from now. The management needs to decide whether they should buy the AUD now by paying Indian Rupee or should wait for some more time expecting the Exchange rate to go down. Design a neural network based Decision Support System (DSS) to help the management in making a decision.
- (b) Using a block diagram explain the operations of an expert system as a knowledge work system.

8. [3+3+4=10 Marks]

- (a) What are exchanges and why do they represent an important business model for B2B commerce?
- (b) Describe the management challenges posed by electronic commerce and electronic business.
- (c) How can Group Decision Support Systems enhance group decision making?

9. [2+2+3+3=10 Marks]

- (a) What is meant by Fair Information Practices (FIP)?
- (b) What are the different regimes that protect intellectual property rights?
- (c) What challenges to intellectual property rights are posed by the internet?
- (d) Discuss some of the adverse social impacts of information systems.