



FINAL  
Examination Paper

(COVER PAGE)

Session : August 2012

Programme : Diploma In Information And Communication Technology (DICTN)

Course : ICT1106 : System Analysis And Design

Date of Examination : December 13, 2012

Time : 2:00pm – 4:00pm Reading Time: Nil

Duration : 2 Hours

Special Instructions :

Answer any FOUR (4) questions.

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Materials permitted : Nil

Materials provided : Nil

Examiner (s) : Mr. Kavi Sharma, Krishnamoorthy .

Moderator : Dr. Vincent Khoo Kay Teong

This paper consists of 5 printed pages, including the cover page.

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DIPLOMA IN COMPUTING & INFORMATION TECHNOLOGY PROGRAMME (DICTN)  
ICT1106: SYSTEM ANALYSIS AND DESIGN  
FINAL EXAMINATION: AUGUST 2012 SESSION

**Instructions:** This paper consists of SIX (6) questions. Answer any FOUR (4) questions in the answer booklet provided. All questions carry equal marks.

**Question 1**

- (a) (i) What are the FOUR (4) basic parts of a use case model? (8 marks)
- (ii) Explain the purpose of a use case model? (4 marks)
- (b) Develop a use case diagram for the university library system.

Patrons have access to the library information to search for book titles and to see whether a book is available. A patron can also reserve a title if all copies are checked out. When patrons bring books to the circulation desk, a clerk checks out the books on a loan. Clerks also check books in. When books are dropped in the return slot, they check in the books. Stocking clerks keep track of the arrival of new books.

The managers in the library have their own activities. They will print out reports of book titles by category. They also like to see (online) all overdue books. When books get damaged or destroyed, they will delete information about book copies. Managers also like to see what books are on reserve.

(13 marks)

**Question 2**

- (a) (i) The table below shows us the development cost, operation cost and the benefit recorded from Project A. Calculate the payback period from the table below.

	Year 0	Year 1	Year 2	Year 3	Year 4
Development Cost	10,000				
Operational Cost		5,000	5,000	6,000	6,000
Benefit		9,000	9,000	10,000	10,000

(5 marks)

- (ii) Using ROI method, calculate the return for this whole project. Use discount rate as 10%.

Year 1	Year 2	Year 3	Year 4
0.909	0.826	0.751	0.683

(5 marks)

- (b) Memory Card is an online company that sells greeting cards and soft toys through the Internet. Their customers are mostly individuals who place small order. Memory Card also supplies wholesales to large gift shops. The basic cards, which are sold without any messages inside, can be personalized if the customer wishes. In this case, customer chooses a suitable message from company's list, plus type face and color for printing. The soft toys are made for special occasions such as birthdays, graduations and marriages. Payment must be sent with the order in the case of individual customers. Wholesale customers are allowed credit.

Construct a class diagram to represent the scenario in Memory Card. Give an example of attribute for each class identified.

(12 marks)

- (c) Give **THREE (3)** reasons why users should be involved in system development.

(3 marks)

### Question 3

- (a) An IT project has been defined to contain the following list of activities along with their completion time and dependencies:

Activity	Duration (weeks)	Predecessors
A	4	-
B	3	A
C	4	A
D	5	A
E	6	C,D
F	3	B,C
G	5	F
H	7	C,F,G
I	6	E,H
J	2	G,H,I

- (i) Draw a PERT chart for the project. (7 marks)
  - (ii) Calculate the overall duration of the project. (2 marks)
  - (iii) Identify the critical and all the possible paths. (8 marks)
- (b) Explain **TWO (2)** disadvantages of using Gantt chart as a scheduling tool. (4 marks)
- (c) Explain system requirement? (4 marks)

**Question 4**

- (a) State the objective of feasibility study. Identify and describe **FOUR (4)** types of feasibility studies in system development. (10 marks)
- (b) Give **THREE (3)** differences between Structured Approach (SDLC) and Object Oriented Approach (OO). (6 marks)
- (c) Identify and explain **THREE (3)** fact-finding techniques in system development. (9 marks)

**Question 5**

- (a) Briefly explain the following Information System. (8 marks)
- (i) Enterprise Computing System.
  - (ii) Transaction Processing System.
  - (iii) Management Information System.
  - (iv) Knowledge Management System
- (b) Describe at least **FOUR (4)** responsibilities of a system analyst. (10 marks)
- (c) List and briefly explain any **FOUR (4)** internal factors and **THREE (3)** external factors which may affect system projects. (7 marks)

**Question 6**

- (a) Draw the context level diagram for the following scenario.

Frosty Forest Recreation Centre has a 25 meter indoor heated pool, a gymnasium and a health-food café. On joining, members fill in an application form. Whenever their details change members fill in an update form so that Adam, the secretary, can update the membership records. Members pay a yearly fee that entitles them to use all the facilities. On payment, members receive a membership card showing their name, member number and membership expiry date. Adam sends reminder notices to members when their membership fees are due. Member listings of current members are generated on a regular basis and given to the Manager of Frosty Forest Recreation Centre.

(6 marks)

- (b) Describe the FIVE (5) phases of the systems development life cycle (SDLC).

(15 marks)

- (c) Explain any TWO (2) stakeholders of a system.

(4 mark)

**-The End-**

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