FINAL
Examination Paper

(COVER PAGE)

Session : August 2015

Programme : Diploma In Information And Communication Technology (DICTN)

Course : ICT1106: System Analysis And Design

Date of Examination : December 7, 2015

Time : 5.00pm – 7.00pm Reading Time : Nil

Duration : 2 Hours

Special Instructions :

Answer any FOUR (4) questions.

Materials permitted : Non-Programmable Calculator

Materials provided : Nil

Examiner(s) : Mr. Shahriman Mohd Said and Mr. Yap Soo Har

Moderator : Associate Professor Dr. Abdullah Gani

This paper consists of 5 printed pages, including the cover page
This paper consists of SIX (6) questions. Answer any FOUR (4) questions in the answer booklet provided. All questions carry equal marks. (25 marks each)

Question 1

(a) A company requires a new Information System. Identify TWO (2) ways the company can obtain the information system. Discuss ONE (1) advantage and ONE (1) disadvantage for each of the two ways given. (8 marks)

(b) Briefly describe Management Information System and explain TWO (2) of its main objectives. (6 marks)

(c) System design is one of the phases in the System Development Life Cycle. Describe THREE (3) activities in system design phase. After the completion of system design, what is the next phase? (11 marks)

Question 2

(a) Name THREE (3) factors that may affect systems projects. (3 marks)

(b) In conducting a feasibility study, we take into account tangible and intangible benefits. Explain the term tangible benefits and intangible benefits and give TWO (2) examples of each benefit. (8 marks)

(c) Describe THREE (3) issues to consider when doing a technical feasibility study. (6 marks)

(d) Describe FOUR (4) preparations you must make if you are conducting an interview to gather information. (8 marks)
Question 3

(a) Briefly describe **THREE (3)** main roles and responsibilities of a System Analyst.

(6 marks)

(b) From the table below, calculate the Cumulative Costs, Cumulative Benefits, Payback period and Return on Investment.

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>60000</td>
<td>3000</td>
</tr>
<tr>
<td>1</td>
<td>17000</td>
<td>28000</td>
</tr>
<tr>
<td>2</td>
<td>18500</td>
<td>31000</td>
</tr>
<tr>
<td>3</td>
<td>19200</td>
<td>34000</td>
</tr>
<tr>
<td>4</td>
<td>21000</td>
<td>36000</td>
</tr>
<tr>
<td>5</td>
<td>22000</td>
<td>39000</td>
</tr>
<tr>
<td>6</td>
<td>23300</td>
<td>42000</td>
</tr>
</tbody>
</table>

(10 marks)

(c) Explain **THREE (3)** types of System Changeover methods and how each of them are implemented.

(9 marks)
Question 4

(a) Using the information given in the following table:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Predecessor</th>
<th>Duration (weeks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>A</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>A</td>
<td>6</td>
</tr>
<tr>
<td>D</td>
<td>B</td>
<td>2</td>
</tr>
<tr>
<td>E</td>
<td>D</td>
<td>2</td>
</tr>
<tr>
<td>F</td>
<td>C</td>
<td>3</td>
</tr>
<tr>
<td>G</td>
<td>D &amp; F</td>
<td>5</td>
</tr>
<tr>
<td>H</td>
<td>E</td>
<td>4</td>
</tr>
<tr>
<td>J</td>
<td>H</td>
<td>2</td>
</tr>
<tr>
<td>K</td>
<td>G</td>
<td>3</td>
</tr>
<tr>
<td>L</td>
<td>K</td>
<td>4</td>
</tr>
<tr>
<td>M</td>
<td>J &amp; L</td>
<td>5</td>
</tr>
</tbody>
</table>

(i) Draw the PERT chart for the above schedule. (4 marks)

(ii) Calculate and list the activities on the critical path. (3 marks)

(iii) Calculate the shortest duration for this project to be completed. (2 marks)

(iv) Show an example of a float in this project. (3 marks)

(b) Explain the term non-functional requirements in software development. List THREE (3) examples of non-functional requirements. (7 marks)

(c) Briefly explain THREE (3) types of testing done during the development of the system. (6 marks)
Question 5

(a) Study the scenario given below for the major business activities of an Online Credit Card processing system (credit card payment gateway). Online Credit Card processing system is a gateway which allows the customers to make payment through the use of credit card whenever they purchase any items/services online on the merchant site. You are required to produce a Use Case diagram for a Merchant’s system as described in the following scenario:

The merchant system will capture the credit card details and then submit the details as a request to the credit card payment gateway on behalf of a customer. The system in the bank which issued the credit card to the customer will verify the credit card details by either approving or rejecting the payment transaction based on the validity of the entered details. If transaction is approved, funds will be transferred to the merchant’s bank account. Whether the transaction is approved or rejected, a certain message will be displayed on the merchant’s side.

(13 marks)

(b) A customer has a name and a company; he can make and cancel order. An order has a date, order code and amount. An order can be confirmed or modified. There are two kinds of order, a normal order cost a flat rate of 100 and a special order cost the weight of the package * 160. From the information above, draw a class diagram.

(9 marks)

(c) State any THREE (3) types of documentation.

(3 marks)

Question 6

(a) Draw a UML Class Diagram for the partial specification of the system described below:

A library loans three different kinds of items to customers: books, video tapes and compact disks. Each item has a title, and publisher. In addition, books have an author and CDs have an artist. The library may have multiple copies of the same book, video tape or compact disk. There are two different kinds of customer: students and staff. For both kinds of customer, the library has their name, gender and address. Students may borrow at most 20 items. Staff does not has any limitations on the number of borrowed items.

(12 marks)

(b) List THREE (3) types of maintenance, and identify an activity conducted for each type of maintenance.

(6 marks)

(c) Differentiate program testing with program verification.

(7 marks)