

**FINAL**  
Examination Paper

(COVER PAGE)

Session : April 2016

Programme : Diploma-In Information And Communication Technology (DICTN)

Course : **ICT1106: System Analysis And Design**

Date of Examination : 26 July, 2016 (Tuesday)

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

Duration : 2 Hours

**Special Instructions :**

Answer any **FOUR (4)** questions.

Materials permitted : Non-Programmable Calculator

Materials provided : Graph paper

Examiner(s) : **Tan Kok Cheng** and Shahrیمان Mohd Said

Moderator : Professor Dr. Abdullah Gani

*This paper consists of ~~4~~ printed pages, including the cover page*

DIPLOMA IN INFORMATION AND COMMUNICATION TECHNOLOGY (DICTN)  
ICT1106: SYSTEM ANALYSIS AND DESIGN  
FINAL EXAMINATION: APRIL 2016 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) Explain the **FOUR (4)** characteristics a system analyst can learn by asking questions about the information systems. (12 marks)
- (b) Sketch a diagram to illustrate the Waterfall Model. Based on this diagram describe the first **THREE (3)** phases of this Waterfall Model (13 marks)

**Question 2**

- (a) Explain the **FIVE (5)** different reasons users may use to request for a development of a new information system (15 marks)
- (b) Explain what is the *economic feasibility* of a new project? List any **SEVEN (7)** cost estimates a system analyst may consider in a development of a project. (10 marks)

**Question 3**

- (a) State any **FIVE (5)** questions an analyst would ask about the current system under investigation in his/ her effort to gather user requirements. (5 marks)
- (b) What is an interview? How would the system analyst determine the people he/ she need to interview? Explain the **THREE (3)** objectives the system analyst need to establish for interviews. (10 marks)
- (c) Briefly explain the **THREE (3)** types of questions a system analyst can use in the design of a questionnaire. Provide an example to illustrate your answer. Of these three types of questions, state which of their survey answers would be the most difficult to analyze? (10 marks)

**Question 4**

- (a) Understand the following system requirements for an online shopping system.

*This system will have a shopping cart where a customer can use to shop for the various items. The customer can pay for the items using his/her credit card.*

Based on the above requirement statements, identify the **FOUR (4)** objects. Sketch these objects with at least 3 attributes and 1 method.

(10 marks)

- (b) The following table describes the costs and benefits of developing and operating a new system for the next several years. Using this table information, determine the payback period (use the graph paper provided) and the return on investment (ROI) at Year 6. What can you conclude from this payback period and ROI?

	YEAR 0	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
<b>COST (RM)</b>	60,000	17,000	18,500	19,200	21,000	22,000	23,300
<b>BENEFIT (RM)</b>	0	30,000	39,000	45,000	60,000	70,000	80,000

(15 marks)

**Question 5**

- (a) Briefly explain the **FOUR (4)** different types of maintenance used in software. In your explanation, provide **TWO (2)** specific examples for each of maintenance explained.

(8 marks)

- (b) List any **FIVE (5)** reasons for conducting a post implementation review on a new application system.

(5 marks)

- (c) The following is a description of Caesar Restaurant's Online Dining System. A customer walks into this Western restaurant. He orders his Western food. He may order some wine to go together with his food. The waiter takes the customer order. The chef confirms the order and prepares the food.

When it is ready, the waiter serves the food and the wine, if any. The customer eats the food and drink the wine. When he is done with the dinner, the customer pays for the food and wine. The waiter will facilitate the payment of this bill. The cashier will accept the payment.

Based on the description given above, draw a suitable use case diagram

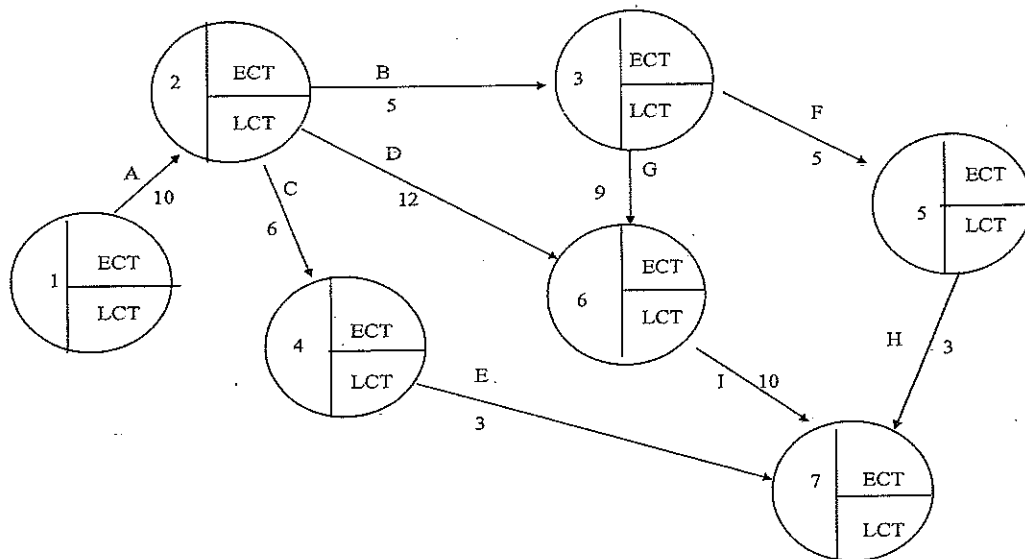
(12 marks)

**Question 6**

- (a) Why is quality assurance important in a software development project? List **FIVE (5)** bad effects that can occur if quality assurance is not implemented. (6 marks)
- (b) Explain the terms, *desk checking* and *structured walkthrough*. (6 marks)
- (c) Consider the following network of activities as shown in Diagram 1. The duration of the activities is measured in weeks.

Using the information in Diagram 1, you are required to do the following:

- (i) Determine the Earliest Completion Time (ECT) and Latest Completion Time (LCT) for each node.
- (ii) Determine all the paths and decide on which path is the critical path for this project. Give a reason for your answer.
- (iii) Can the combined activities "C" & "E" be delayed by 16 weeks without causing the entire project to be delayed?



**Diagram 1**

(13 marks)