

**FINAL**  
Examination Paper

(COVER PAGE)

Session : January 2017

Programme : Diploma In Information And Communication Technology (DICTN)

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

Date of Examination : 09 March, 2016 (Thursday)

Time : 11:00am – 1:00pm Reading Time : Nil

Duration : 2 Hours

**Special Instructions :**

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

Materials permitted : Non-Programmable Calculator

Materials provided : Nil

Examiner(s) : **Tan Kok Cheng** and Kavitha Thamadharan

Moderator : Professor Dr. Abdullah Gani

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

DIPLOMA IN INFORMATION AND COMMUNICATION TECHNOLOGY  
PROGRAMME (DICTN)  
ICT1106: SYSTEM ANALYSIS AND DESIGN  
FINAL EXAMINATION: JANUARY 2017 SESSION

**Instruction:** 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 **FOUR (4)** characteristics the system analyst would investigate on an proposed new information system (12 marks)
- (b) Explain the terms, *Middle Management* and *Operational Management*. Briefly explain the systems used by these two layers of management. (13 marks)

**Question 2**

- (a) Define *economic feasibility*. List any **SIX (6)** cost estimation the system analyst used to determine the economic feasibility of a proposed new system. (9 marks)
- (b) Explain the fact-finding technique called *observation*. (6 marks)
- (c) Sketch a system request form that users fill up whenever they request for new IT systems or services. (10 marks)

**Question 3**

- (a) What is a questionnaire? What types of information a questionnaire seek to gather? List any **SIX (6)** rules for designing a questionnaire. (12 marks)
- (b) Explain the terms *open-ended* and *closed-ended questions*. Compare and contrast the usefulness of these questions when they are used in a survey. (13 marks)

**Question 4**

- (a) What is an inheritance? Explain this concept by using **ONE (1)** suitable example.  
(4 marks)
- (b) Define *polymorphism*. Explain this concept using **TWO (2)** suitable examples  
(8 marks)
- (c) The following table describes the costs and benefits of developing and operating a new system for the next eight years. By applying the present value factors (PVF) on the cost and benefits figures given in this table, estimate the present value payback period (hint: no graph is required) and calculate the present value return on investment (ROI) at Year 8.

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
<b>COST (RM)</b>	100k	15k	15k	17k	18k	20k	35k	30k	60k
<b>BENEFIT (RM)</b>	0	30k	150k	200k	200k	150k	120k	100k	50k
<b>PVF @8%</b>	1.000	0.926	0.857	0.794	0.735	0.681	0.63	0.583	0.54

(note: k represents 1,000)

The company will approve a new software development if the software's present value payback period is within 3 years and its present value ROI must exceed 70%. What can you conclude about this new software development?

(13 marks)

**Question 5**

- (a) Explain ISO definition of *software quality*. List at least any **THREE (3)** defects that can appear if software quality is not applied into a system development.  
(5 marks)
- (b) Briefly explain any **FIVE (5)** types of testing that are carried out during the system development.  
(10 marks)
- (c) This is a description of Marle Sdn Bhd's *Inventory System*. This system interacts with its *Account Payable System* and *Order Processing System*. Draw a suitable use case diagram to show the Inventory System works.

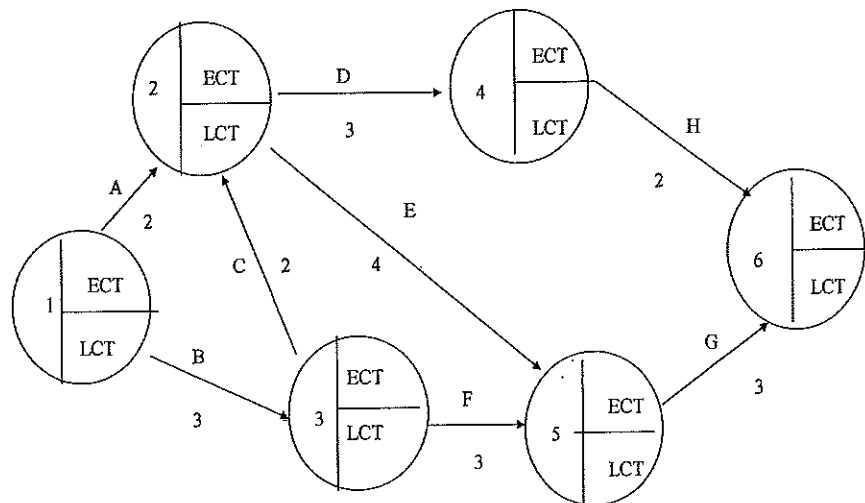
The Receiving clerk endorses the delivery of the goods at Marle's Logistic depot. This process automatically updates itself into the *Accounts Payable System*. At the depot, the Stock clerk checks the stocks and then updates the stocks received into inventory.

When the time for Marle to fulfil its customers' order, its *Order Processing System* will initiate a Fill Order process. The Order fulfilment clerk will locate the goods in the order. Once all the goods are gathered, the Shipping clerk will arrange for shipment to its customers. This process also updates the inventory.

(12 marks)

**Question 6**

- (a) Describe the system changeover called *Pilot Operations*. (8 marks)
- (b) What is an *Operational Environment*? (6 marks)
- (c) Consider the following network of activities as shown in Diagram 1. The duration of each activity is measured in weeks.

**Diagram 1**

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

- Determine all the possible paths and decide on which path is the critical path for this project. Give a reason for your answer.
- Determine the Earliest Completion Time (ECT) and Latest Completion Time (LCT) for each node.

(11 marks)

~ The End ~