UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMAMINATION
SEMESTER II
SESSION 2011/2012

COURSE NAME	:	SOFTWARE QUALITY ASSURANCE
COURSE CODE	:	BIT 3113/ BIT 31103
PROGRAMME	:	BACHELOR OF INFORMATION TECHNOLOGY
EXAMINATION DATE	:	JUNE 2012
DURATION	:	2 HOURS AND 30 MINUTES
INSTRUCTION	:	ANSWER **ALL** QUESTIONS.

THIS QUESTIONS PAPER CONSISTS OF THREE (3) PAGES

Q1 **(a)** Explain any **TWO (2)** objectives of software quality assurance activities.

(4 marks)

(b) Differentiate between software errors, software faults and software failures.

(6 marks)

(c) McCall's software quality model can be divided into three categories. List all of the **THREE (3)** categories and the quality factors that are included in each of the categories

(10 Marks)

Q2 **(a)** There are **THREE (3)** components of software maintenance. List and distinguish all the **THREE (3)** components.

(6 marks)

(b) Describe the foundations of high quality maintenance

(4 marks)

(c) Explain the impacts of the various quality factors on software maintenance components in relation to the first foundation.

(10 marks)

Q3 **(a)** Compare Black-Box testing to White-Box testing.

(8 marks)

(b) Based on case study below, develop any possible (valid and invalid) test cases using the Equivalence Classes technique.

In developing a software module for Parit Raja swimming centre, you are asked to calculate the entrance ticket prices. The center's ticket price depends on four variables: day (weekday, weekend), visitor's status (OT=one time, M= member), entry hour (6.00-19.00, 19.01-24.00) and visitor's age (up to 16, 16.01-60, 60.01-120). The entrance ticket price is summarized in **Table 1**.

Table 1: Entrance Ticket Price table- Parit Raja Swimming Centre

	Mon, Tue, Wed, Thurs, Fri				Sat, Sun			
Visitor's Status	OT	OT	M	M	OT	OT	M	M
Entry Hour	6.00-19.00	19.01-24.00	6.00-19.00	19.01-24.00	6.00-19.00	19.01-24.00	6.00-19.00	19.01-24.00
	Ticket Prices-S							
Visitor's age								
0.0-16.00	5.00	6.00	2.50	3.00	7.50	9.00	3.5	4.00
16.01-60.00	10.00	12.00	5.00	6.00	15.00	18.00	7.00	8.00
60.01-24.00	8.00	8.00	4.00	4.00	12.00	12.00	5.5	5.50

(12 Marks)

2

Q4 Based on the statement below answer the following questions:

Module G12 is coupled with seven lower-level modules and only one upper-level module.

(a) Discuss how the number of couplings affects the efforts required for incremental testing strategy.

(4 marks)

(b) Outline the effects of module G12's specific coupling situation on the resources required to perform unit tests according to the top-down strategy and the bottom-up strategy.

(8 marks)

(c) Draw the structure based on your answer in **Q4 (b)**.

(8 marks)

Q5 As a quality assurance manager, Ahmad is responsible to decide any suitable software quality metrics to be used in his organization. You are required to provide several basic knowledge that he needs to make decision, including:

(a) List **ALL** the requirements for successful software quality metrics according to their type.

(4 Marks)

(b) Explain each of the requirements that you have listed in **Q5 (a)**.

(8 Marks)

(c) Describe the process involve in defining the software quality metrics.

(8 Marks)