Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2013/2014

COURSE NAME	:	SOFTWARE ENGINEERING PRINCIPLES
COURSE CODE	:	BIE 10103
PROGRAMME	:	1 BIP
EXAMINATION DATE	:	JUNE 2014
DURATION	:	2 HOURS AND 30 MINUTES
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

Q1 (a) Differentiate between software and hardware characteristics.

(4 marks)

(b) Describe the phases of the prototyping model for software development.

(6 marks)

(c) List **THREE (3)** examples of software projects suitable in the prototyping model.

(6 marks)

Q2 (a) Distinguish between known and unpredictable risk.

(4 marks)

(b) Determine the steps in developing a risk table.

(5 marks)

(c) Calculate risk exposure based on Figure **Q2(c)**:

> **Risk identification.** Only 70 percent of the software components scheduled for reuse will, in fact, be integrated into the application. The remaining functionality will have to be custom developed.
>
> **Risk probability.** 60% (likely).
>
> **Risk impact.** 60 reusable software components were planned. If only 70 percent can be used, 18 components would have to be developed from scratch (in addition to other custom software that has been scheduled for development). Since the average component is 100 lines of codes (LOC) and local data indicate that the software engineering cost for each LOC is RM16.00.

FIGURE Q2(c)

(4 marks)

(d) Discuss the importance of distinguishing developing user requirements from system requirements in requirements engineering process.

(6 marks)

Q3 (a) Write **FIVE (5)** non-functional requirements for ticket-issuing system. Include expected reliability and response time in your answer.

(10 marks)

(b) Figure **Q3(b)** shows a class diagram for a safe home problem.

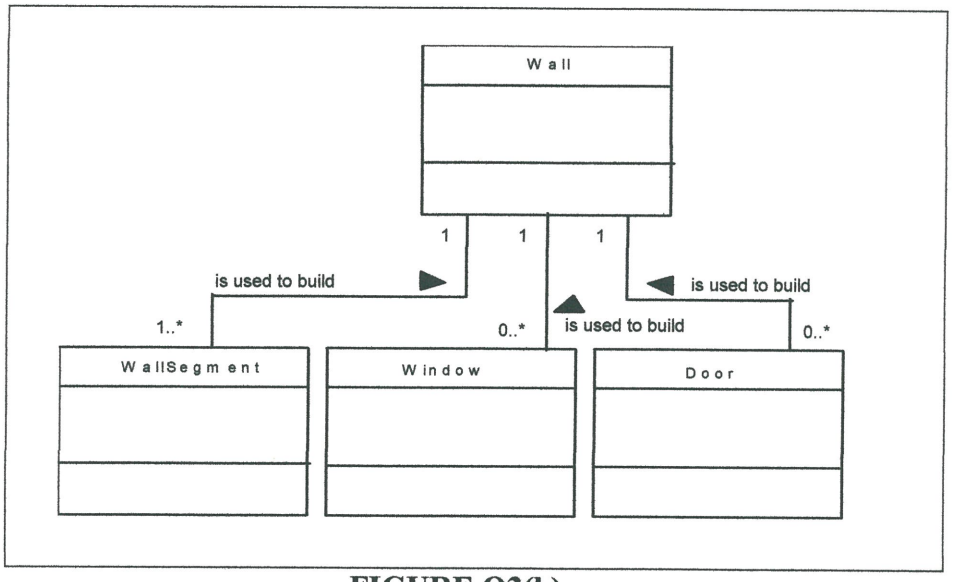

FIGURE Q3(b)

(i) Illustrate **TWO (2)** extra classes to complete the system.

(2 marks)

(ii) Identify **TWO (2)** possible attributes and operations for each of the new classes in the answer of **Q3(b)(i)**.

(8 marks)

(c) Sketch a software architecture for a vehicle store web-based sales system.

(10 marks)

Q4 (a) Describe **TWO (2)** differences between black-box testing and white-box testing.

(4 marks)

(b) Define the term 'stress testing'.

(2 marks)

(c) Derive **TWO (2)** test cases for a patient management system using stress testing.

(4 marks)

- END OF QUESTION -