

CONFIDENTIAL



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2013/2014**

COURSE NAME : SOFTWARE ENGINEERING
COURSE CODE : BIT 10103
PROGRAMME : 2 BIT
EXAMINATION DATE : JUNE 2014
DURATION : 2 HOURS AND 30 MINUTES
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

CONFIDENTIAL

Q1 (a) Distinguish between known risk and unpredictable risk. (4 marks)

- (b) Compute the function point (FP) value for a project based on the following domain characteristics:
- Number of external inputs: 32
 - Number of external outputs: 60
 - Number of external inquiries: 24
 - Number of internal logical files: 8
 - Number of external interfaces files: 2

Assume that all complexity adjustment values in **Figure Q1(b)** are average and sum of F_i is 46 (a moderately complex product).

Note:

Function point formula:

$$FP = \text{count total} \times [0.65 + 0.01 \times \text{sum of } F_i]$$

Description	Complexity Weights		
	Low	Medium	High
External Inputs	3	4	6
External Outputs	4	5	7
External Inquiries	3	4	6
Internal Logical Files	7	10	15
External Interfaces Files	5	7	10

FIGURE Q1(b)

(10 marks)

- (c) Calculate risk exposure based on scenario in **Figure Q1(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 LOC and local data indicate that the software engineering cost for each LOC is RM16.00.

FIGURE Q1(c)

(5 marks)

- Q2** (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)
- Q3** (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)

- Q4** (a) Write **FIVE (5)** non-functional requirements for ticket-issuing system. Include expected reliability and response time in your answer. (5 marks)
- (b) Develop a context-level Data Flow Diagram (DFD) that could serve as a basis understanding the requirements for a vehicle store web-based sales system. (10 marks)
- (c) Sketch a software architecture for a vehicle store web-based sales system. (10 marks)
- (d) Figure **Q4(d)** shows a class diagram for a safe home problem.

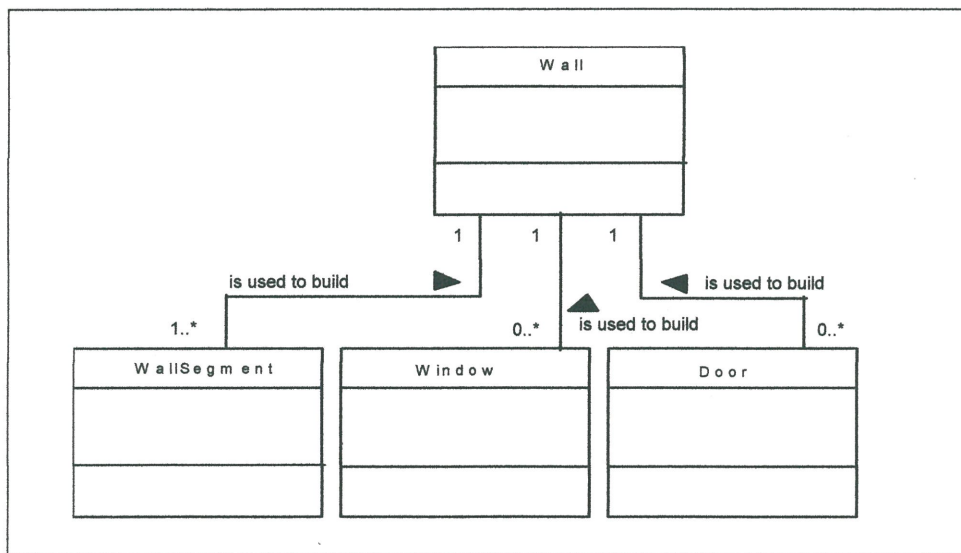


FIGURE Q4(d)

- (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 **Q4(d)(i)**. (8 marks)

- END OF QUESTION -