



**UNIVERSITI TEKNOLOGI TUN HUSSEIN ONN
MALAYSIA**

**FINAL EXAMINATION
SEMESTER II
SESSION 2012/2013**

COURSE NAME : SOFTWARE ENGINEERING
PRINCIPLES

COURSE CODE : BIE 10103

PROGRAMME : 1BIP/ 2BIP

EXAMINATION DATE : JUNE 2013

DURATION : 2 HOURS AND 30 MINUTES

INSTRUCTION : ANSWER ALL QUESTIONS.

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

- Q1** (a) Identify the user requirements and system requirements. (6 marks)
- (b) Describe **THREE (3)** types of non-functional requirement. (6 marks)
- (c) Determine **SIX (6)** ambiguities or omissions in the following statement of requirements for part of a ticket-issuing system:
- An automated ticket-issuing system sells rail tickets. Users select their destination and input a credit card and a personal identification number. The rail ticket is issued and their credit card account charged. When the user presses the start button, a menu display of potential destinations is activated, along with a message to the user to select a destination. Once a destination has been selected, users are requested to input their credit card. Its validity is checked and the user is then requested to input a personal identifier. When the credit transaction has been validated, the ticket is issued. (Pfleeger and Atlee, 2010) (6 marks)
- (d) Discuss how an engineer might keep track of the relationships between functional and non-functional requirements. (6 marks)
- Q2** (a) List **FOUR (4)** perspectives that might be used for system modeling. (4 marks)
- (b) Describe the purpose of activity diagrams. (4 marks)
- (c) Justify why a system model has to be completed and corrected. (6 marks)
- (d) Using your knowledge of how an **Automated Teller Machine (ATM)** is used, develop a set of use cases that could serve as a basis for understanding the requirements for an ATM system. (10 marks)

- Q3**
- (a) Interpret the advantage of designing and documenting a software architecture. (4 marks)
 - (b) State **FOUR (4)** fundamental questions that should be addressed in architectural design. (4 marks)
 - (c) Recognize **TWO (2)** ways in which an architectural model of a system may be used. (4 marks)
 - (d) Explain why you may have to design the system architecture for a system before the requirements specification is completed. (4 marks)
 - (e) Illustrate an example of pipe and filter architecture. (8 marks)
- Q4**
- (a) Explain why testing can only be detected with the presence of errors. (6 marks)
 - (b) Discuss the differences in testing a business-critical system, a safety-critical system, and a system whose failure could seriously affect lives, health, or business. (6 marks)
 - (c) Differentiate between validation and verification in software testing. (4 marks)
 - (d) Determine **THREE (3)** principal stages of testing for a commercial software system. (6 marks)
 - (e) Write a scenario that could be used to help design tests for the Weather Station System. (6 marks)

- END OF QUESTION -