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**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

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

COURSE NAME : REQUIREMENT ANALYSIS AND  
SOFTWARE SPECIFICATION  
COURSE CODE : BIT 31403  
PROGRAMME : 3 BIT  
EXAMINATION DATE : JUNE 2014  
DURATION : 2 HOURS AND 30 MINUTES  
INSTRUCTION : ANSWER ALL QUESTIONS

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

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- Q1** Software requirements can be specified as functional and non-functional requirements.
- (a) Compare functional requirements to non-functional requirements. (4 marks)
  - (b) Provide **TWO (2)** examples of functional and non-functional requirements. (4 marks)
  - (c) Determine the appropriate activities or techniques to manage conflict in the selection of both requirements. (2 marks)
- Q2** Unified Modeling Language (UML) is typically used for modelling system requirements in object oriented software development approach.
- (a) Determine category of UML model that can be used to model business process and functional modelling. (2 marks)
  - (b) Explain **TWO (2)** UML diagrams that can be used for the category answered in **Q2(a)**. (4 marks)
  - (c) Discuss the relationship between both UML diagrams in **Q2(b)**. (4 marks)

**Q3** Draw an activity diagram based on the scenario in Figure Q3.

The purchasing department handles purchase requests from other departments in ABC Enterprise. People in ABC Enterprise who initiate the original purchase request are the "customers" of the purchasing department. A case worker within the purchasing department receives that request and monitors it until it is ordered and received. Case workers process the requests for purchasing products under RM 1500, write a purchase order, and then send it to the approved vendor. Purchase requests over RM 1500 must first be sent out for a bid from the vendor that supplies the product. When the bids return, the case worker selects one bid. Then, the case worker writes a purchase order and sends it to the approved vendor.

(Adopted from Satzinger et al., 2005, Q11, p. 160)

**FIGURE Q3**

(10 marks)

**Q4** Answer questions Q4(a)-Q4(c) based on the description in Figure Q4.

This is the system for a dentist office. Whenever new patients are seen for the first time, they complete a patient information form that asks their name, address, phone number and brief medical history, which are stored in the patient information file. When a patient calls to schedule a new appointment or change an existing appointment, the receptionist checks the appointment file for an available time. Once a good time is found for the patient, the appointment is scheduled. If the patient is a new patient, an incomplete entry is made in the patient file; the full information will be collected when they arrive for their appointment. Because appointments are often made so far in advance, the receptionist usually mails a reminder postcard to each patient two weeks before their appointment.

(Adopted from Tegarden et al., 2013)

**FIGURE Q4**

(a) Draw a use case diagram.

(15 marks)

(b) Choose one of the use cases in Q4(a) to:

(i) outline the analysis classes involved.

(5 marks)

(ii) draw a related sequence diagram.

(10 marks)

(iii) draw a related class diagram. Consider the following relationships between the classes (if there is any).

- Association
- Aggregation and Composition
- Generalisation

(10 marks)

**-END OF QUESTION-**