



OXFORD BROOKES UNIVERSITY

AUGUST 2003 EXAMINATION

15th AUGUST 2003

M8748 Information Systems Analysis and Design

TIME : 2 HOURS + 10 MINUTES READING
NUMBER OF PAGES : 1 Cover Sheet and 3 pages of questions

INSTRUCTIONS:

- All Questions in Section A are Compulsory and choose any TWO questions in Section B.
- Section A carries 40 marks.
- All questions in Section B carry 30 marks each.
- Please start every question on a new page.
- Answers will not be marked if they are illegible.
- Enter the question numbers (in the order you have attempted) in the boxes provided in the answer script.
- Write your INDEX NUMBER and MODULE NUMBER on the cover page of the answer script.

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SECTION A – Answer ALL Questions

QUESTION 1

- (a) What do you understand by the term “Validation” and “Verification”. Compare between Validation and Verification in Software testing system.

[10 marks]

- (b) Prepare an activity diagram for making and drinking a cup of coffee, or if there is no coffee getting a can of cola, or if there is no cola ending the activity. [Correct annotations should be applied]

[10 marks]

- (c) Given a web based retail system [based on WAP (wireless application protocol) system] where a Transport agent able to receive the messages (regarding customers order to deliver the goods to customers places) while the agent on the road. While he is on the road he is able to receive messages from the web server in his mobile phone (his mobile phone WAP enabled) mailbox. Use appropriate graphical notations to depict the requirements of a system that defines the interactions between the transport agents, message system and mailbox queue in his WAP mobile phone. [Required to draw a class diagram]. [Correct annotations should be applied]

[10 marks]

- (d) Consider the following scenario credit Card Validation System in the Credit card company, the following functions are performed by different actors :-

- Perform Card transactions by customers
- Customers can be either individual or corporate
- Financial institutions can be either retail institutions or corporate financial

institutions

- Maintain and process customers' bill
- Manage customers account
- Maintain card transactions
- Reconcile customer account

Use appropriate graphical notations to depict the requirements of a system that defines, updates and reports on credit card system (require to draw a case diagram).

[10 marks]

[Total: 40 marks]

Please turn over

SECTION B – Answer Any TWO Questions**QUESTION 2**

Draw a state diagram for auto thermostat for house. Consider that morning everyone left the house and the temperature of the house stabilizes. However, an automatic program might command the thermostat to lower the temperature to save the electricity. The thermostat goes back to work. Later in the evening everyone back and the temperature of the house need to reset again. This time commanding the thermostat to raise the temperature so that family members can come home to a cozy house. In the evening, with the home filled with warm bodies and heat from cooking, the thermostat has a lot of work to do to keep the temperature even while it runs the heater and cooler efficiently. Finally at night things return a quiet state.

- (a) Draw a state diagram above scenario. (Also known as a state machine). [Correct annotations should be applied]

[20 marks]

- (b) What do you understand by the following terms?

- (i) Test driver
- (ii) Stub
- (iii) Test harness

[6 marks]

- (c) Describe Static testing and dynamic testing?

[4 marks]

[Total: 30 marks]

*Please turn over***QUESTION 3**

- (a) ABC warehouse Pte Ltd is a warehouse storage and order processing company who sells hardware materials. It store materials in warehouse, receives the order from the customers and process it sends it to customers and also bills to customers. Customers have to receive the order send pay to the company. Draw an activity diagram showing the various states of the order processing system (customer, sales, warehouse) from the above scenario. [Correct annotations should be applied].

[20 marks]

- (b) State some of problems of using prototyping.

[10 marks]

[Total: 30 marks]

QUESTION 4

- (a) What do you understand by the term “Software testing”? Identify and explain four software quality attributes?

[10 marks]

- (b) Consider the workflow associated with building a house. First, you select a site. Next, you commission an architect to design your house. After you have settled the plan, your developer asks for bid to bids to price the house. Once you agree on a price and a plan, constructions can begin. Permits are secured, grounds are broken, the foundation is poured, the framing is erected, and so on, until everything is done. You are then handed the keys and a certificate of occupancy, and you take the possession of house.

Draw an Activity diagram for the above House building scenario. [Correct annotations should be applied].

[10 marks]

- (c) Consider the following scenario of the of the cellular network system?

- User can place phone call
- User can receive phone call
- User will be able to receive additional call while they are on line
- User able to place conference call etc

[10 Marks]

Use appropriate graphical notations to depict the requirements of a system that defines cellular network system (require to draw a case diagram). [Correct annotations should be applied].

[Total: 30 marks]

- END OF PAPER -