UNIVERSITY OF COLOMBO, SRI LANKA

UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY (EXTERNAL)

Academic Year 2007/2008 –2nd Year Examination – Semester 4

IT4303 : Rapid Application Development

PART 2 - Structured Question Paper

7th September, 2008

(ONE HOUR)

To be completed by the candidate

BIT Examination Index No: .....

Important Instructions:

- The duration of the paper is **1 (one) hour**.
- The medium of instruction and questions is English.
- This paper has **04 questions** and 08 **pages**.
- **Answer all questions**
- **Write your answers** in English using the space provided **in this question paper**.
- Do not tear off any part of this answer book.
- Under no circumstances may this book, used or unused, be removed from the Examination Hall by a candidate.
- Note that questions appear on both sides of the paper.
  If a page is not printed, please inform the supervisor immediately.

Questions Answered

Indicate by a cross (×), (e.g. [X]) the numbers of the questions answered.

	Question numbers				
To be completed by the candidate by marking a cross (×).	1	2	3	4	
To be completed by the examiners:					

Index No …….

1)

a) State three (3) general characteristics of the Rapid Application Development (RAD) approach.

[06 Marks]

ANSWER IN THIS BOX

(i). uses specialized tool
(ii). uses time boxing
(iii). extremely short development life cycle
(iv). iterative evolutionary prototyping

b) Name two (2) disadvantages of using the Rapid Application Development (RAD) approach.

[04 Marks]

ANSWER IN THIS BOX

(i) Tools used are expensive.
(ii) features are reduced due to time boxing

c) State three (3) process related classic mistakes committed during software development.

[06 Marks]

ANSWER IN THIS BOX

(i) Insufficient risk management
(ii) Insufficient planning
(iii) Inadequate design

d) Name three (3) characteristics which one needs to consider in selecting a Rapid Application Development (RAD) tool for software development.

[04 Marks]

ANSWER IN THIS BOX

(i). Estimated gain
(ii). Quality expected
(iii). Training time
(iv). Compatibility

2)

a)

Compute the adjusted total number of function points for a payroll program that reads a file of employees and a file of information for the current month and print cheques for all the employees. The program is capable of handling an interactive command to print an individually requested cheque immediately.
Function point multipliers:-

	Function points		
Program characteristic	**Simple**	**Average**	**Complex**
Inputs	3	4	6
Outputs	4	5	7
Logical internal files	7	10	15
Inquiries	3	4	6
External interface files	5	7	10

Consider *Influence multiplier* as 1.15. State your assumptions if there's any.

[10 Marks]

ANSWER IN THIS BOX

Program characteristic	**Simple**	**Average**	**Complex**
Number of Inputs	6		
Number of outputs	4		
Number of Logical internal files			
Inquiries	3		
External interface files	5		
Unadjusted function point total		18	
Adjusted function point total	18*1.15		

b) Give a strength and a weakness of the function-point metric.

[04 Marks]

ANSWER IN THIS BOX

Strength:

Matric is not based on the internal structure of the program and can be computed once a preliminary design of the system is available.

Weakness:

Single weight is allocated for all items of one type

c) Overly optimistic scheduling leads to excessive schedule pressure on developers. Give three (3) negative effects of excessive schedule pressure on software development.

[06 Marks]

ANSWER IN THIS BOX

(i) decrease quality of developed software product
(ii) reduces motivation
(iii) high turnover of employees

3) a) State three (3) principles behind agile software development.

[06 Marks]

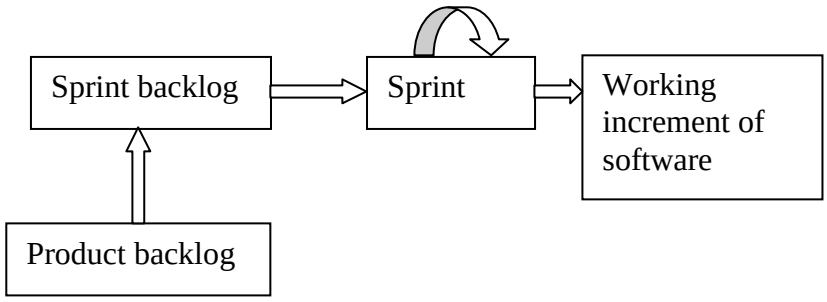
ANSWER IN THIS BOX

(i). Working software delivered frequently
(ii). Face to face communication
(iii). Self organized small teams

b) Give an overview of the SCRUM software development process using a diagram.

[10 Marks]

ANSWER IN THIS BOX



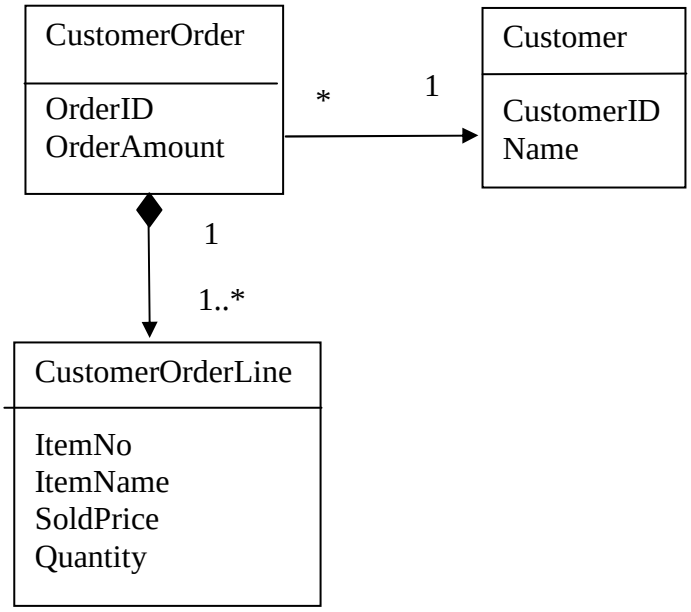
c) What is time boxing in relation to software development projects? How does it affect the software development process?

[04 Marks]

ANSWER IN THIS BOX

Time box is a period of time in which a certain task accomplished. End date is set in stone and may not be changed. Some time boxes allow the team to adjust the scope of the task in order to meet the deadline.

4) Consider the following UML diagram for an Order entry system.



Questions 4.a) to 4.c) are based on the above UML diagram..

a) Suppose the above order entry system is developed using NetBeans which generates Java coding. Write the java code so generated for the CustomerOrder class. (Implementation of methods is not required)

[20 Marks]

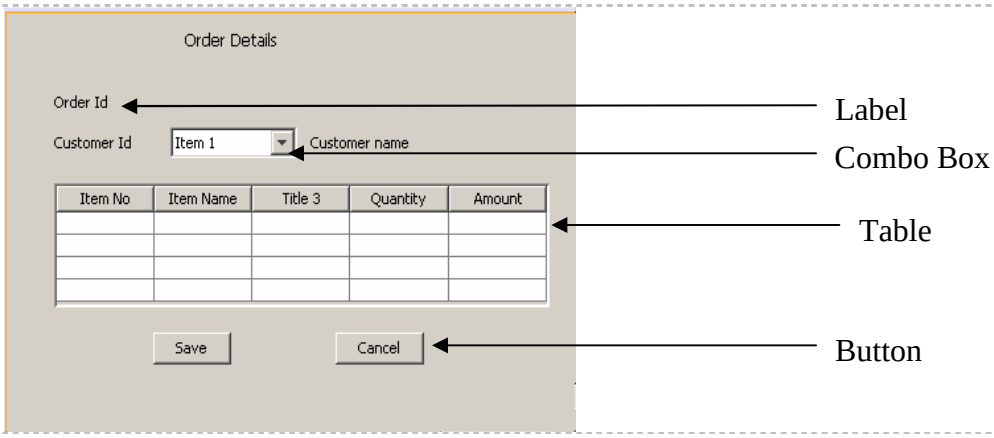
ANSWER IN THIS BOX

```
import java.util.ArrayList;

public class CustomerOrder {

    private int OrderId;
    private int OrderAmount;
    private ArrayList<CustomerOrderLine> mCustomerOrderLine;
    private Customer mCustomer;
    public CustomerOrder () {
    }
    public int getOrderAmount () {
    }
    public void setOrderAmount (int val) {
    }
    public int getOrderId () {
    }
    public void setOrderId (int val) {
    }
    public Customer getCustomer () {
    }
    public ArrayList<CustomerOrderLine> getCustomerOrderLine () {
    }

    public void setCustomerOrderLine (ArrayList<CustomerOrderLine>
val) {
    }
    public void setCustomer (Customer val) {
    }

}
```

b) Suppose you have to design a Graphical User Interface to enter order details. Interface should provide facility to select CustomerId from an existing list and also to type CustomerId if it is known. Also there should be a facility to verify customer details.
Design the GUI and name the Swing containers and Swing controls as in NetBeans Matisse GUI builder.
NOTE: Consider only the requirements given in the above simplified UML diagram.

[15 Marks]

ANSWER IN THIS BOX



c) Name the event that can be used to validate a typed in CustomerId.

[06 Marks]

ANSWER IN THIS BOX

LostFocus

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