

**BIRKBECK COLLEGE**  
(University of London)

**MSc EXAMINATION**

**SCHOOL OF BUSINESS, ECONOMICS AND INFORMATICS**

**INFORMATION SYSTEMS**

**15 credits**

**TUESDAY 19<sup>th</sup>. MAY 2015**

**2.30 pm – 4.30 pm**

**INSTRUCTIONS**

Candidates must answer **THREE** questions in total.

**TWO** questions must be selected from Section A.

**ONE** question must be selected from Section B.

No credit will be given for additional questions answered.

There are five questions on this paper.

All questions are worth 33 marks.

Marks for sub-questions are shown on the right below the sub-question.

One mark is reserved for a well presented paper.

The paper is worth 100 marks in total.

No calculating or communicating equipment may be used.

Time allowed: Two hours.

Candidates must **NOT** bring any supplementary material into the examination.

## Section A

### Question 1

#### Order

Order Number : 0097645

Order Date : 13/10/12

Customer No. 123456

Customer Name

John H. Smith

Invoice Address

Delivery Address

Smith & Benson

24 Petunia Gardens

Unit 37

East Chipping

Linburgh Industrial Park

Linburgh

LN2 7OM

LN6 7MG

#### Delivery Instructions:

If there is no response at number 24 deliveries may be signed for by the occupant at nos, 22 or 26.

Item Code	Description	Price	Qty.	Tax Code	Tax	Amnt
1234	3-Tier Vienna Deluxe	34.50	2	A	6.90	75.90
5678	American Pie	1.25	37	A	4.63	50.88
9101	Raisins	0.25	200	Z	0.00	50.00
Delivered by : CHL		Delivery Charge				4.00
Total E&OE						180.87

- a. The above is an example of an invoice issued by a company providing cakes. Use Codd's normalisation rules to represent the data structure to the third normal form showing the intermediate forms. (27 marks)
- b. Explain the transitions between forms (6 marks)

## Question 2

For an ordering system similar to the one implied by the form in Question 1, the normal path of the ordered item is as follows: ordered; picked; shipped. It may be that there is insufficient stock of an item when the order is placed so the alternative to the normal path is ordered; backordered; shipped. When the out\_of\_stock condition is detected, reorder is invoked and the state of the item transitions to “backordered”. When fresh stock is received, if the quantity is sufficient to satisfy this particular back order the item is shipped.

- a. Develop a Behaviour State Machine for the scenario above. (24 marks)
- b. Identify the other Behaviour diagrams available in the UML. (4 marks)
- c. Using this scenario as an example take a position on whether the Behaviour State Machine is the most useful for the process design required here. (5 marks)

## Question 3

Hofstede suggested five dimensions of “national” or “global regional” cultural difference that may affect our approach to changing Information Systems in significant commercial or administrative organisations, whilst Hall suggested a further three.

- a. Identify and explain the eight dimensions suggested. (24 marks)
- b. Explain the differences in terms of risk, cost and time between pilot, phased and simultaneous implementation. (9 marks)

## **Section B**

### **Question 4**

- a. Give three circumstances in which interception of employee data by employers may be allowed. What 'best' practices should employers follow regarding employee data surveillance?  
(10 marks)
- b. Under what circumstances can state agencies intercept a citizen's data? Provide an example of a high-profile occurrence of state surveillance that has drawn comment in the media, and discuss the ethical issues associated with this.  
(18 marks)
- c. Describe RIPA and what it governs.  
(5 marks)

### **Question 5**

- a. What is Malware (provide two examples)?  
(6 marks)
- b. A number of high-profile cyber-attacks in the past few years have highlighted the use of intrusions e.g. malware, hacking, as a weapon. Provide two instances and describe the primary ethical issue raised when governments use malware as a weapon.  
(8 marks)
- c. List two of the laws in the UK that are concerned with computer misuse, and describe what aspects of computer misuse they govern.  
(10 marks)
- d. What are the limitations of legislation concerning computer misuse?  
(9 marks)