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UNIVERSITY OF LONDON

CO1108 ZA

BSc and Diploma Examination

**COMPUTING AND INFORMATION SYSTEMS AND COMBINED DEGREE  
SCHEME**

**Information systems: The Foundation of E-Business**

Date and Time: Friday 6 May 2016 : 10.00 – 13.00

Duration: 3 hours

There are SIX questions in this paper. Candidates should answer **FOUR** questions. All questions carry equal marks, and full marks can be obtained for complete answers to a total of **FOUR** questions. The marks for each part of a question are indicated at the end of the part in [.] brackets.

Only your first FOUR answers, in the order that they appear in your answer book, will be marked.

There are 100 marks available on this paper.

No calculators should be used.

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**Question 1**      Scenario: Buzza Graphics

Buzza Graphics is a graphic design company based in Bath, a small city in England. For 20 years they have grouped together a range of graphic designers with different skills, working with clients for all their graphic design needs, from designing brand logos, to providing suites of graphic branding for companies to utilise at different times.

All designs have traditionally been provided on paper, and Buzza Graphics pay for very large storage facilities in order to securely hold all designs for their clients.

However, tragically a recent flood at their storage facilities made Buzza Graphics realise that it has no proper backup facilities for all their company data. Furthermore, the company has no way for recreating designs owned by their clients if they were ruined by a flood, fire or other disaster. This is a very serious issue. Often customers need to look at the designs of their logos and product designs to create new merchandise, like company business cards or t-shirts, where the logo may feature prominently but in different proportions, so the original designs are vital. Without being able to provide backups, Buzza Graphics seriously risks losing customers and ruining their carefully cultivated reputation as reliable graphic design company.

Buzza Graphics has hired you as a database specialist to help them develop a new database management system. They want the new system to be as easy to use as possible and they want users to not have to worry about where designs are physically stored. They also need you to devise a backup and recovery strategy for their company. As part of the report please answer the following questions.

For this question, you must use the information provided above in the scenario.

- (a) Describe how Buzza Graphics could use Entity Relationship Diagrams for developing the logical view of the database. And provide examples of two Entity Relationship Diagrams. [10]
- (b) Describe the relationship between Relational Database Systems, Entity Relationship Diagrams and the process of Normalisation. [15]

**Question 2**      Scenario: Circle Telephones Technical Support Services

Founded in 2003, Circle Telephones Technical Support Services is a company which runs alongside its parent company, Circle Telephones, in supplying telephone-based technical support for Circle Telephones products, as well as insurance for the devices. Circle Telephones are the leading brand in the field and their products are desired by consumers because of their sleek design, superior branding techniques and exclusive (and expensive) ranges. The parent company therefore relies on its Technical Support Services division to ensure their customers are happy with their products.

A key feature of its business model is that Circle Telephones has no shops. Circle Telephones Technical Support Services relies on its customers having access to internet information systems or at least telecommunications systems to get their technical support and insurance issues solved.

It has now been decided that Circle Telephones Technical Support Services needs to create a new database management system and communication system to stay at the forefront of its business. At a senior management meeting, it has been proposed that the design of the new information system should be outsourced to a company in India. It is argued that, by outsourcing the functions, many benefits can be gained.

However, not all members of the management team are in agreement. Issues arise in terms of communicating with the outsource supplier, and even whether it is possible to specify all the requirements of the system in the UK and send these specifications to be interpreted correctly in India.

- (a) Discuss five reasons why companies such as Circle Telephones Technical Support Services would use outsourcing to develop and manage their information systems. Your answer should include two real world examples of companies that outsource functions and where they have outsourced them to.

[15]

- (b) Discuss five disadvantages of Circle Telephones Technical Support Services taking an outsourcing approach to developing and managing information systems.

[10]

**Question 3**      Scenario: Goodwins Herbal Remedies

Founded in 1970, Goodwins Herbal Remedies is one of the oldest and most respected herbal remedy producing companies in the UK. It has a relatively large suite of staff who produce the herbal remedies by hand and carefully interact with their customers' needs. It has one shop outlet in South London which its customers travel far and wide to go to. It also delivers its products to carefully selected health food shops across the UK.

Over the last three years, Goodwins Herbal Remedies has seen its market share reduce and also its profits fall. After a series of management meetings it was decided that its failure to use major computing systems in its production process was a key factor in the company not keeping up with the competition, as well as having falling profits.

As Goodwins Herbal Remedies normally produce each herbal product by hand, they are now reconsidering this for the first time. For example, senior management are now considering using a fully computerised production line. The company is also considering upgrading its traditional design department with Computer Aided Design (CAD) workstations. These CAD systems will be used to create designs that can be used by the production line without human intervention.

Workers at Goodwins Herbal Remedies, some of whom have worked there since its inception, are not happy with the proposals. Historically new products were designed through a process of prototyping and this meant that continuous improvements could be made to the design and content of its mixtures of its range of remedies.

The management team of Goodwins Herbal Remedies is also considering the introduction of a transaction processing system for parts ordering.

The union at the company has threatened to go on strike if the new computerised production plant is implemented without staff being fully consulted. The union are afraid that the computerisation of Goodwins Herbal Remedies will lead to job losses, deskilling and major disruption.

For this question, you must use the information provided above in the scenario.

- (a) Describe the major operations performed by a Transaction Processing System, and then compare and contrast how Goodwins Herbal Remedies could operate its new Transaction Processing System in batch and real-time processing modes.

[15]

- (b) The process of change proposed by Goodwins Herbal Remedies management team could lead to organisational inertia. To avoid organisational inertia, explain what other aspects of the company need to change together with the information system.

[10]

**Question 4**      Scenario: Business Processes and Value Chains

- (a) Explain what is meant by the term “business processes” in relation to creating value for customers. Following this, describe a set of business processes that could form the value chain of a smartphone manufacturer. Then explain how this value chain can be used to identify opportunities for the smartphone manufacturer. [15]
- (b) Explain how a firm’s supply chain is related to its supply value chain. Then provide two examples of how understanding how these two chains are treated could lead to a competitive advantage for a firm. [10]

**Question 5**      Scenario: Software Systems

- (a) Define what is meant by legacy systems and explain why they should always be considered when specifying new information systems architecture. [10]
- (b) A key outcome of a human-centered design is user-friendliness. Describe how user-friendliness manifests itself and outline three key characteristics of user-friendly software systems. [15]

**Question 6**      Information Systems Challenges

- (a) Describe FIVE problems associated with using email and fax as methods of communication. [15]
- (b) Explain how information systems depend upon people for their success and how their deployment affects people. [10]

**END of PAPER**