

THIS PAPER IS NOT TO BE REMOVED FROM THE EXAMINATION HALLS

UNIVERSITY OF LONDON

291 0105

BSc/Diploma Examination
for External Students

COMPUTING AND INFORMATION SYSTEMS

Introduction to Information Systems

Dateline: Friday 15 May 2009 : 10 00 – 1 00 pm

Duration: 3 hours

There are six questions in this paper. Candidates should answer **FOUR** questions. Full marks will be awarded for complete answers to **FOUR** questions. Candidates must not attempt more than the required number of questions. Calculators are not allowed.

QUESTION 1

Scenario: NGA Bank

Inside a branch of the NGA Bank, Ms. Brown, a potential mortgage client, and Ms. Blue, a financial advisor with NGA, are sitting in front of a PC running a presentation package. Ms. Brown is Ms. Blue's first client in her new post, the result of a promotion which followed an extended series of appraisal interviews between Ms. Blue and the branch manager, Ms. Green. The specific presentation being run is one the bank has prepared in order to help financial advisors to explain to potential clients the different types of mortgage deals that the bank is offering at any one moment.

Ms. Brown and Ms. Blue are now at a stage in the presentation which involves the financial advisor asking the potential client about certain details relating to financial status (e.g., salary, regular commitments, etc.) and preferences (e.g. fixed or variable interest rate, repayment or endowment, etc.). Ms. Blue has just logged in to the bank's mainframe computer remotely and started a session with a system, known as NGA-SS, specifically designed to capture the sort of customer data just described and suggest which, among those on offer, is the best deal for Ms. Brown. The mortgage deals used by this system were in turn generated by a very large system, known as NGA-MD, that NGA financial analysts use to choose different mortgage deals that will help NGA increase its attractiveness in the face of tough competition.

After Ms. Brown decides on which of the deals she would like to receive more information, Ms. Blue will send an email to Mr. White, the branch's secretary, and ask him to forward a written quote by fax to Ms. Brown's home address along with a covering letter including details about the validity period of the offer.

For this question, you must use the information provided above in the scenario entitled **NGA Bank**.

- (a) Explain the difference between personal and impersonal communication and illustrate it with examples from the given scenario.

[4 Marks]

- (b) Illustrate the following classes of communication technologies: same-time same-place, same-time different-place, different-time same-place, different-time different-place, using one example for each, taken from the given scenario entitled **NGA Bank**.

[4 Marks]

- (c) List four types of information systems, among those discussed in the course, that occur in the given scenario, justifying each type that you list with the passages in the scenario that are relevant.

2910105 2009

(question continues on next page)

[8 Marks]

- (d) For each of the four types of information system you listed in in part (c), briefly explain, using the information conveyed in the given scenario, where in the plan-execute-control cycle it is being applied.

[9 Marks]

QUESTION 2

Scenario: Surviving Competition: CLUBS v. SPADES

CLUBS Ltd is a long-established, small-sized, retail business selling clothing items. It has been a family-run business for over half a century. It runs one store in Diamonds, a medium-sized city in the most populated part of the country. This location translates into good infrastructure (e.g., in transport and communications) for the business, its suppliers and its customers. Most CLUBS customers live within a 30 km radius from the store, and most CLUBS suppliers are located within a 200 km radius from CLUBS's premises.

CLUBS's success has been largely the result of selling at very low prices from a very large choice of items. So far, CLUBS has never felt the need to deploy information systems (ISs) beyond a basic level (e.g. word processing and small databases) in which off-the-shelf, low-cost, general-purpose packages suffice.

The management at CLUBS is concerned because, for the past four quarters, sales have declined steadily. They have linked this to increased competition coming from a large department store owned by the SPADES Inc. chain. This department store started operations a year ago and is located in Hearts, a city the same size as Diamonds, 150 km to the west of Hearts.

SPADES's nationwide strategy is geared towards the achievement of two major objectives: to keep costs as low as possible and to concentrate efforts into identifying and responding to customer preferences. It uses purpose-built ISs to help it achieve these objectives.

For this question, you must use (not necessarily all) the information provided above in the scenario entitled **Surviving Competition: CLUBS v. SPADES** in addition to any information supplied in the individual items below.

You must phrase all your answers in terms which are specific to the scenario above and that are pertinent to it

- (a) What category of ISs is CLUBS deploying? How are they likely to impact on competitiveness? Justify your answer.

[5 Marks]

- (b) List two categories of ISs that SPADES is likely to be deploying to achieve its goals. Briefly justify your answer by explaining how each category you have listed helps in achieving some goal.

[5 Marks]

- (c) Managers at CLUBS have been warned by independent consultants that their decision-making processes with respect to advance purchases for forthcoming fashion collections

are being taken with no consideration of actual past-sales data. The consultants have recommended that executive information systems be adopted by CLUBS managers.

Briefly discuss whether executive information systems can be introduced on their own in the light of CLUBS's current situation.

[5 Marks]

- (d) DECK Ltd is a supplier of clothing items for boat owners from which both CLUBS and SPADES purchase. Both CLUBS and SPADES buy equivalent quantities and products from DECK but, in spite of this, SPADES is offered better prices than CLUBS in its purchases from DECK.

The management at CLUBS is slightly puzzled by this, since they cannot understand what greater incentive there might be for DECK to offer SPADES a lower price. Briefly describe one way in which ISs could be behind an explanation for this phenomenon.

[5 Marks]

- (e) Briefly suggest how CLUBS could use ISs to compete with SPADES using a *focus* strategy.

[5 Marks]

QUESTION 3

(a) Write short notes on the following

- (i) Discuss the important differences between star, ring, and bus topologies.
- (ii) Describe what is meant by a legacy system and explain their significance in information systems architectures
- (iii) Entity relationship diagrams for developing the logical view of a database.
- (iv) The use of computer aided design (CAD) in mass customisation.
- (v) The business requirements for good quality information

[25 Marks]

QUESTION 4

- (a) What are the main issues that have to be addressed by Information System project management?

[5 Marks]

- (b) Why are measurable project goals important?

[5 Marks]

Scenario: Biggs Inc.

Biggs Inc. are an expanding company that manufactures and sells welding equipment. They plan to open an overseas office and have decided they need an Information System to help oversee their business both at home and in their new office. They hope that through the new computer system they can keep track of all the equipment sold and be able to pick up trends in the market that will allow them to respond better to fluctuations in demand. The daily sales figures will be transferred by EDI. They would also like to be able to video conference between offices to discuss strategy and keep some of the friendly company atmosphere of which they are proud. The system needs to be up and running in twelve months, in time for the new office opening. There is a limited budget, and Biggs hope that the maintenance cost for the system can be kept low. The IS consultants employed by Biggs have planned to spend the first 4 months assessing the system requirements, the next 6 months designing and building the system and the final two months testing and fine tuning. There can be no slippage if the project is to complete on time.

For this question, you must use the information provided above in the scenario entitled **Scenario: Biggs Inc.**

- (c) What are the milestones in this project?

[4 Marks]

- (d) The IS consultants hope to use a package purchasing approach. What does this approach entail, and why would they select this approach?

[5 Marks]

- (e) In the Biggs scenario, what are the major risks in the planned IS ?

[6 Marks]

QUESTION 5

- (a) What is meant by the terms system and framework?

[4 Marks]

- (b) What are the properties of the WCA that make it a useful framework for analysing business processes?

[4 Marks]

Scenario: Choosing an Information Systems Architecture for CBA Ltd.

CBA Ltd. has been a successful retail company, operating a single, very large store. The executive board has decided to launch a long-term expansion plan that will completely change the way CBA operates. At the heart of the business strategy for the future is the goal of operating many small to medium sized stores within a 100 km radius of the existing single store. In the new strategy, the latter will be the operational centre and head office for CBA.

So far, the use that CBA has made of information systems (ISs) has been largely determined by its characteristic feature, viz., a large but local firm, operating one single but very large outlet. CBA has used ISs in very limited ways. In fact, CBA admits that it has reacted to circumstances and that it has never considered fully the question of how to deploy ISs to maximize its performance as a business. Currently CBA uses a single large PC (personal computer) to reconcile operational data collected from point-of-sale hardware and individual users' PCs.

The executive board is aware that its long-term business strategy is dependent on the best use of IS technology. As a consequence, the board has set up a working party to ensure that the IS platforms needed for the board's business strategy is in place and performs as expected for the benefit of that strategy.

At the moment, the working party is considering the question of which information systems architecture is the best for the business.

For this question, you must use (not necessarily all) the information provided above in the scenario entitled **Choosing an IS Architecture for CBA Ltd.** in addition to any information supplied in the individual items below.

You must phrase your answers in terms which are specific to the scenario above and that are pertinent to it if the question so requires.

- (c) Suppose the working party decided on a *pure centralized* IS architecture. Briefly describe two advantages and two disadvantages that one would expect to be derived from this choice.

(question continues on next page)

[8 Marks]

- (d) Suppose CBA implemented a *distributed, client-server style* IS architecture. Briefly describe two questions of infrastructure (in the sense studied in the Subject Guide) that CBA would have to have addressed for its choice of IS architecture to yield the expected benefits.

[6 Marks]

- (e) One member of the working party has argued that choosing a *personalized* computing approach would make it easier for CBA to have a homogeneous platform for hardware and for system software. Briefly explain one economic advantage of having a homogeneous platform for hardware and for system software.

[3 Marks]

QUESTION 6

- (a) When planning a new implementation of an information system members of the project team will be faced with many alternative ways by which decisions may be made. Describe five common flaws in the ways people make decisions.

[10 Marks]

- (b) Define the nature and role of a decision support system in providing support for both repetitive and non-repetitive decision making. Include in your answer at least one real world example of a decision support system.

[8 Marks]

- (c) Explain the terms social context and social presence and provide a real world example of each

[7 Marks]