MARCH 2016

SYSTEMS ANALYSIS

Instructions to candidates:
a)   Time allowed: Three hours (plus an extra ten minutes' reading time at the start – do not write anything during this time)
b)   Answer any FIVE questions
c)   All questions carry equal marks. Marks for each question are shown in [ ]
d)   Mark allocation should determine the length of your answer and the time you spend on it. Generally one mark is awarded for every valid point you make
e)   Read each question through fully before starting any part of it
f)   Ensure that you pay particular attention to words underlined, in CAPITALS or in **bold**. FEW OR NO MARKS will be awarded to any question where these are ignored
g)   No computer equipment, books or notes may be used in this examination

1.   a)   Explain why systems analysis is a necessary part of the development process when a company decides to change its administrative system – whether to computerise or to change to a different manual system.   [5]
      b)   One of the tasks a systems analyst might undertake is a feasibility study. After completing this, he will produce a report. Describe, IN DETAIL, the likely contents of a feasibility report.   [8]
      c)   Explain who will read the report and act on it. One possible solution is to accept the main recommendation. Discuss THREE OTHER different possible decisions that may be taken after the report has been read and discussed. For EACH, give a good reason why that decision might have been taken.   [7]

2.   Draw a data flow diagram for the following scenario:

      A company specialises in building custom desktop computers. The customer can choose the brand and specification of all the major components that make up the computer. In order to select their requirements the customer can step through the options on the company's website. The available options are held in a database. At the end of this process the customer checks the details and confirms their selections. The order details are submitted and received by the production department who will build the computer. A copy of the order is sent to the accounts department who will generate an invoice. The components list is sent as an order to the supplier. The factory forwards a copy of the invoice to the customer along with the expected delivery date.   [20]

3.   The computer manager has asked you, the senior systems analyst, to produce a document for the company training manual, outlining the ways in which employees can help to reduce the loss of data or failure of equipment. Write this document, numbering each point and, for EACH, explain the possible threat if that particular point is not taken seriously by employees. TEN relevant and non-trivial points well explained would gain full marks.   [20]

4.   A company publishes local newspapers and local interest magazines. Computers are used by most of the people who work for the publisher – graphic designers, administration staff, editors, journalists etc. Discuss in detail the use of computers in this organisation. In particular, state the main tasks performed by the computer. Your answer should also include:
      •   the type and quantity of computer equipment
      •   how and when data is captured
      •   outputs from the system either on paper or screen
      •   particular uses made of the system by different people within the organisation
      •   details of the files needed, including content, organisation and methods of access   [20]

5. A small business needs to be computerised in order to keep up with the current market. Wheels4U offer vehicles for hire on a daily, weekly or monthly basis. They currently have 3 family cars, 2 small vans and 1 large van. They are planning to expand their fleet of vehicles and now need to computerise everything to be sure of operating effectively. There are 2 administration staff and an accountant in the office, a mechanic and a general maintenance person who check the vehicles regularly, carry out repairs, servicing and cleaning. The company need to keep up to date with all legal requirements related to hiring out vehicles, this includes vehicle safety, insurance cover, verifying customers' identities, and keeping accurate records of all transactions. Discuss in **detail**:

a) How you would carry out an **appropriate** investigation in order to determine the needs of this business. What methods would you use? What information do you need? [5]

b) What hardware would Wheels4U need to buy? Justify EACH item that you recommend. [5]

c) What software would they need to ensure that the business was effective, efficient and allows them to remain competitive? Justify your choices. [5]

d) What other issues might Wheels4U have to deal with in making the transition from a manual system to a computerised one? [5]

6. A company offers short-term loans for people needing to borrow money quickly. The maximum loan amount is £5,000 GBP and the maximum repayment limit is three years. Typically these loans are for unseen emergencies such as a new car, domestic appliances or household repairs etc. The company uses a computer system to keep records of clients and loan details. When a client wishes to borrow money they complete a pre-printed **paper** application form with relevant details. The loan company staff then enter the details into the computer on a specially-designed form. This form will automatically calculate repayment terms and interest etc.

a) With particular reference to a **loan company**, state FIVE different factors that should be considered in the design of this paper form and for EACH give an example of why this is important. [10]

b) Design a screen form for the loan company staff to enter loan details into the **computer**. The form should be drawn full size on one side of a sheet of paper. [8]

c) Apart from the calculations, state TWO fields that would be automatically generated on the **screen** form. [2]

7. a) In **logical order**, list the typical stages of a systems life cycle and describe what EACH stage involves. [12]

b) List all the people who would be involved in the systems life cycle and outline exactly what their involvement would be and at what stages. [8]

8. Businesses need a variety of software applications to meet their processing needs.

a) Name and describe at least THREE different methods of acquiring these software applications. [6]

b) Compare the three methods discussed in part a) and outline the advantages and disadvantages of EACH. [9]

c) Select ONE of these methods and describe a situation where this would be the best option. [5]