DECEMBER 2016

APPLICATIONS

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 ALL of SECTION A and any FOUR questions chosen from SECTION B
c)   SECTION A and each question in SECTION B carry 20 marks. Marks for sections of questions are shown in [ ]
d)   The main application in each question of Section B is highlighted for quick recognition
e)   The number of marks allocated for each section should determine the length of your answer and the amount of time you spend on it. Generally ONE point gains ONE mark and is rarely achieved by one-word answers. Note carefully that where some questions require details of how hardware or software achieves its task, descriptions of user actions are unlikely to earn marks
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

SECTION A – Answer ALL parts of this question

1.   a)   Explain how an organisation decides whether to show output data on a screen or to print on paper. Give an example for EACH method where the other would be inappropriate.   [5]
       b)   When new systems are designed, a variety of diagrams might be produced. Distinguish carefully between EACH of the following:
              i   Systems flowchart
              ii   Program flowchart
              iii   Data flow diagram   [6]
       c)   Define and distinguish clearly between the following:
              i   Program
              ii   Data
              iii   Application   [6]
       d)   Define the term **batch processing** and give a typical example where it would be appropriate.   [3]

SECTION B – Answer any FOUR questions from the following

2.   In a large town, a **LIBRARY** is run as a **CLUB** from a central building. Members pay an annual subscription which runs from the day they join for exactly one year. For this membership, the members can borrow up to four books at any time for up to three weeks and can reserve books currently out on loan to other members. Fiction and non-fiction books are stocked.
       a)   Suggest a suitable method of identification for the member which can enable his or her details to be accessed quickly from the computer without errors. Give reasons for your choice.   [4]
       b)   Describe automated features in the library which would enable a member to find suitable book titles to assist with a particular project.   [4]
       c)   State the features in the package which would enable library staff to help a borrower locate a book and set up a reservation if it is not available.   [4]
       d)   Describe the processes that will take place that will inform a member who has reserved a book that it has been returned to the library by the previous borrower.   [4]
       e)   A member reports that he has lost a book that was on loan to him and he expects to have to pay for it. Explain the processes that must take place within the computer system to deal with this, assuming that a replacement book will be bought by the library.   [4]

3. a) i Explain the overall purpose of **STOCK CONTROL**, computerised or manual.
   ii Discuss the benefits of computerising stock control. [10]
   b) Name FOUR printouts that might come out of a stock control system. For EACH:
   • state how it will be used and
   • by whom [8]
   c) **NumberOnOrder** is one field on the stock file holding the number of that product already ordered from the supplier. Explain why it is present and how it is used. [2]

4. A company sells clothes by **MAIL ORDER**. Summary catalogues are distributed nationally to the general public with magazines and delivered to every house in targeted areas using special delivery companies. When a customer first places an order by posting an order form enclosed in the catalogue, an account is set up for future purposes.
   a) Name the data items that the customer would write on this order form when placing the first order. Give reasons for EACH, explaining how each item would be used by the company. [5]
   b) Explain how the ordering process can be shortened for subsequent orders. [4]
   c) Give reasons why the company may need to contact customers other than in response to an order. [3]
   d) A customer may not place an order for a long period of time. Explain how the company might deal with the customer's record. [3]
   e) Explain how the computer system can deal with special offers where two linked items purchased together earn a discount. [5]

5. Discuss how a **PUBLIC UTILITY** company uses computers. Choose ONE of the following:
   a) Water supply
   b) Telephone
   c) Electricity or gas
   Your answer should include:
   • an indication of the type and quantity of hardware needed
   • the main processes
   • the data needed for each process
   • how the data is captured
   • the outputs produced
   • the users of each output
   The company is likely to have a large number of customers, each with a standing account. [20]

6. A local football **CLUB** has over 300 members. The club organises regular competitions between its own members and against other clubs where several teams might be formed – junior, men, women. All the details of members are held on a computer file.
   a) A new member attends the club and supplies information about himself which is keyed into the computer while he is present. List TEN fields that would need to be held for this member, giving a reason for including EACH. [10]
   b) Suggest ways in which the club could use the file for the benefit of all. [10]

7. The marketing manager of a **SUPERMARKET** decides to stock a new product. An order has been placed and the goods have arrived in the storeroom. Some of the items have been placed on the appropriate shelves for customers to buy.
   a) i Explain how the computer system would have been prepared for this new product. [3]
   ii A customer approaches the checkout with FOUR of one particular product (along with other items). Describe the physical processes that occur at the checkout for this situation. [3]
   iii Describe also the internal computer processes. [2]
   b) If this new product is popular, describe the tasks that will be performed by supermarket staff and using the computer system to ensure that there are sufficient numbers on the shelves. [8]
   c) i Give TWO major benefits for the customer in having a computerised checkout. [2]
   ii Give also TWO different benefits for the supermarket staff. [2]

8.   A medium-market chain of **HOTELS** uses computer systems for all its administration.
    a)   Distinguish between <u>back office</u> and <u>front office</u>. Explain the different administration processes that take place in these two offices.   [7]
    b)   A guest booking in is allocated a numbered room and is informed of the nightly/weekly charges. Breakfast is included in the room charges. The hotel wishes to record all additional features of the hotel that each guest uses, for charging purposes. Explain how this can be achieved as efficiently as possible.   [5]
    c)   When the guest leaves, he will need to settle his bill. Explain how the computer system achieves this, including the charges for all facilities used in the hotel.   [4]
    d)   Twice a year, the hotel sends a letter through the postal system to all guests who have stayed in the hotel during the previous 12 months. This letter offers them reduced rates if they would like to book again. Explain how this can be achieved as automatically as possible.   [4]