JUNE 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)   Clearly a barcode reader cannot identify an item if it does not carry a barcode. Consider THREE different standard business applications which have automated input NOT using barcode readers or keyboards. For EACH, explain:
            •   why barcode reading was not considered for that input
            •   which method was considered best for that application
            •   why it was considered the best   [9]
        b)   Give FOUR reasons why capturing data directly onto a computer by keyboard input at the time it is available is better than keyboard input later from a completed paper form.   [4]
        c)   Draw a large completed diagram of a standard invoice showing its main features and having TWO different ordered items. Assume the company is your own.   [5]
        d)   Distinguish between a system flowchart and a dataflow diagram.   [2]

SECTION B – Answer any FOUR questions from the following

2.   A **MAIL ORDER** company buys products in bulk from a range of wholesalers and sells these to the public using a parcel delivery service. Customers can order goods by mail, telephone or email. A fully automated ordering system is planned for access via a website but this is not yet available.
        a)   Customers ordering by mail are required to submit a cheque payment. Outline how payments could be made for the other two means of ordering before the goods are despatched.   [4]
        b)   List and describe the data that the customer will need to give to receive the ordered goods.   [4]
        c)   Name the printed documents that will be created by the company for each order.   [4]
        d)   Name other printed documents that will be created by the company for its own internal use.   [4]
        e)   State data items that will appear on documents received by the customer which the customer did NOT supply.   [4]

3.   Describe in detail FOUR significantly different applications that you might find in a **HOTEL**.
        For EACH you should explain:
        •   the type of application
        •   who would supply the initial data
        •   what processing would take place on the data
        •   what outputs would result   [5 each]

4. A **PUBLIC UTILITY** energy company supplies both gas and electricity to most properties in a large town. Meters for gas and electricity are installed in the properties.
   a) State the data that will be necessary to calculate each customer's next bill for electricity. [5]
   b) Electricity bills are sent to the customer every three months based on electricity used. Explain how the company can bill the customer even if it was unable to gain access to the meter reading at the appropriate time. [4]
   c) Customers who buy both gas and electricity from the company are given a 25% discount on their total bill. In addition, if the customer agrees to be billed via email rather than through the postal system, a 5% discount is offered whether the customer uses both fuels or just one. Explain how the customer record will differ from other customers who do not qualify for these discounts. [5]
   d) Describe an appropriate and efficient means of collecting fuel usage from the meters. [6]

5. An **ESTATE AGENT (REALTOR)** has a shop which displays details of homes it has been contracted to sell and in which prospective buyers can register when looking for a new home.
   a) Name the files that this business would need for this purpose and explain why EACH would be needed. [5]
   b) A client comes into the shop and asks for details of houses that meet his criteria. State FIVE pieces of information he might give (apart from his own personal details). [5]
   c) If the client decides to make an offer on a house after seeing it, explain how the data on the files might be adjusted, given that this sale may be stopped by either buyer or seller. [2]
   d) If the sale IS concluded successfully, explain what would then happen to the details of buyer and seller. [3]
   e) i   State the types of printouts that the agent would produce.
      ii   Suggest a printer which would be suitable for all these tasks. [5]

6. A public **LIBRARY** uses a computer to maintain records of its books and borrowers. The library is free to use by local residents providing they have registered and can produce their cards at the time of borrowing. The cards have to be produced off-site.
   a) Outline the process for a new potential borrower to register and obtain a card. [4]
   b) To borrow one or more books, the borrower gives the library staff member the card and the books. Suggest an ideal way of capturing the card details AND the book details with as little human action as possible. [5]
   c) Explain how the borrower will be able to remember when the books are due back. [2]
   d) Explain the steps taken by the library when the books are returned. [4]
   e) A borrower wishes to borrow a book that the library normally stocks but is currently loaned to another person. For a small fee, this book can be reserved for the new borrower when it is returned. Explain all the steps that would be necessary to automate this process. [5]

7. a) In many countries there are growing customer and public concerns around the question of data privacy. What steps are being taken by both companies and governments to try to address some of these concerns? [10]
   b) Identify SIX significantly different measures than could be taken to ensure that data is SECURE. [10]

8. a) A **BANK** customer decides to withdraw money from a cash machine outside a bank using a card.
      i   Explain how the customer was initially able to obtain the card.
      ii   Describe, in numbered steps, the process for withdrawing the money.
      iii Explain ALL the precautions that the bank can take to ensure that only the authorised owner of the card is able to withdraw the money. [10]
   b) Inside the bank, a customer decides to withdraw money from his current account and place it into his savings account. This is all performed automatically without the bank clerk handling any cash.
      i   Explain how this is achieved.
      ii   Explain how the clerk ensures that the customer is authorised to take this decision. [6]
   c) At the counter, the customer also wishes to check on recent transactions on the account. Explain how this is achieved while still maintaining privacy. [4]