



DECEMBER 2016

INFORMATION PROCESSING

**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 allocations should determine the length and depth of your answer and the time you spend on it. A part question carrying 4 marks normally requires 4 different and valid points
- e) In definitions, do not use the word being defined in your definition, e.g. avoid the word SERIAL when defining SERIAL FILE
- 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) In table form, list FIVE possible causes of hardware failure and state ways of minimising or eliminating EACH. [10]
- b) In table form, list FIVE possible causes of data loss other than hardware failure. Again, state ways of minimising or eliminating EACH. [10]

- 2. All parts of this question relate to a RETAIL company.
- a) Explain why validation is performed when data is first input. [2]
- b) Part of a record for a current sales transaction is shown below:

Purchaser	Quantity	Date of purchase
William Blake	250	21/5/2010

- c) Take EACH of the three fields in turn and describe the validation that can be undertaken. [8]
- c) Product codes are six digits long and use a traditional check digit system. The modulo-11 method is used with weights of 6-5-4-3-2-1.
- i William Blake orders product 531987. Explain how this number can be checked WITHOUT the need to refer to the product file. Prove that this product number is valid, showing all working and explaining the steps. [5]
- ii Explain why the next product number in sequence CANNOT be 531988. [2]
- iii Calculate the next product number in sequence after 531987. Again, show all your working. [3]

- 3. Name a particular operating system and describe, in detail, FIVE significantly different tasks that it performs. [4 each]

- 4. a) Printers used with large networks have different characteristics from those normally attached to microcomputers. Explain what these are. [5]
- b) Select a printer suitable for printing invoices which will be handed to customers of a car hire company when they reserve their cars. Explain why it is suitable and describe its method of printing. [7]
- c) Select a different type of printer suitable for printing tax statements to be sent to over one million customers.
- i Explain why it is suitable and describe its method of printing.
- ii Explain why the choices you have made in each of b) and c) would not be suitable for the other. [8]

5. a) Distinguish clearly between security and privacy. [4]  
 b) Describe the measures that **MUST** be taken to ensure that **PRIVACY** is guaranteed in a large organisation with regard to computerised data. [10]  
 c) Identify **SIX** significantly different measures that could be taken to ensure that data is **SECURE**. [6]
6. a) Define the term **OMR**. Explain, in general terms, how OMR operates. [5]  
 b) Choose **THREE** different major application uses of OMR and for **EACH**:  
 • name the application  
 • explain how the organisation using it will prepare for its use  
 • explain who will be the target data suppliers and how this data is collected  
 • describe what the organisation will do once the data has been collected [5 each]
7. Suppose you work for a software company which advises small businesses on their hardware and software needs. To give each business an idea of what your company can offer, a presentation is being prepared which can be taken to the company and shown to relevant staff. You will deliver the presentation yourself using visual images, graphical effects and bullet points displaying them on a large screen connected to your laptop computer. Explain how the computer could be used to assist this presentation. Include in your answer the hardware and software needed. Explain what the software offers and how the presentation is put together. [20]
8. a) Explain why date of birth is held on data files in preference to age. [4]  
 b) Draw a diagram to show how printed documents pass between a retailer and its wholesale supplier. [5]  
 c) Distinguish between the following methods of processing:  
**batch            on-line            real-time** [5]  
 d) Describe realistic back-up systems that a large business would use for its computer data. [4]  
 e) Distinguish clearly between data and information. [2]