



ICM

JUNE 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. Choose any FOUR of the following methods of data capture. For EACH:
- describe how the data input device works using appropriate diagrams
 - identify precisely a particular application that is most suited to its use
- a) Barcode reading
 - b) MICR
 - c) OCR
 - d) OMR
 - e) Voice recognition [5 each]
- 2.
- a) Check digit validation cannot realistically be used for checking all numeric data. Identify a situation where it is appropriate and one in which it is not. [2]
 - b) Employee numbers are six digits long and are created using the modulo-11 system with traditional weights 6, 5, 4, 3, 2, 1. Investigate the number 354287 and state whether it is valid or not. Show all stages of your working. [6]
 - c) Give specific BUSINESS examples where EACH of the following validation checks would be used. Include in your answer for EACH:
 - TWO realistic examples of data – one VALID and one INVALID
 - an explanation of how the computer could detect the invalid one
 - i Range check
 - ii Format check
 - iii Presence check
 - iv Any other check (excluding check digit verification) [12]
- 3.
- a) Explain why there are so many different types of printers. [4]
 - b) Name FOUR specific types of printer. [4]
 - c) Select any TWO of these printers. For EACH:
 - i briefly describe an appropriate application which would need it
 - ii describe its characteristics which distinguish it from other printers [6 each]

continued overleaf

4. a) In business, a computer user may use two types of application software – general purpose and special purpose.
 i Distinguish between the two.
 ii An employee uses a special purpose package. Explain how his subsequent actions will be different from using a general purpose package. [5]
- b) A user wishes to sort a very large data file of employee records (key field = employee number) so that the file is sorted by employee name – surname must be the prime key and first name the secondary key. State the information the sort program will need to achieve this. [5]
- c) Name a particular operating system. Describe FIVE major features the operating system provides. Your choices must be significantly different from each other. [10]
5. a) Discuss IN DEPTH a SPECIAL PURPOSE business APPLICATION package you have studied. In particular:
 i name the area of business it covers
 ii identify who the main users are
 iii state its main functions
 iv describe the type of data that is input
 v describe the outputs that it produces [9]
- b) Program source code must be translated in order to run on a computer. Discuss the THREE main types of language translators available, distinguishing carefully between them. [9]
- c) Distinguish CLEARLY between SYSTEM software and APPLICATION software. [2]
6. a) Describe the measures that MUST be taken to ensure that PRIVACY is guaranteed in a large organisation with regard to computerised data. Give specific examples where possible. [14]
- b) Identify SIX significantly different measures that could be taken to ensure that data is SECURE. [6]
7. IT4U is a company which advises small to medium-sized companies on their hardware and software needs. You have been asked by the Managing Director of IT4U to put together a presentation of what the company can offer to clients. The presentation will be taken to the clients and you will deliver it yourself using visual image, graphical effects and bullet points, displaying them on a large screen connected to your laptop. Explain how the computer could be used to assist in 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. Select a particular company or organisation that you have studied.
 a) State the name of the company and its main functions. [2]
 b) Describe ALL the uses of computing in this company. Indicate the type of processing in EACH case. [5]
 c) Describe the specific outputs that computers produce in the company and explain who uses these and how they are used. [5]
 d) List the hardware used in the main applications of the company including the number and types of computers used. [5]
 e) Describe the input data needed to produce the results. [3]