



MARCH 2016

## COMPUTER APPRECIATION & 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 sections of Question 1 and any THREE questions chosen from Questions 2 to 6
  - c) Question 1 carries 40 marks and each other question carries 20 marks. Marks for sections of questions are shown in [ ]
  - d) 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. Spend about one hour on Question 1
  - e) Note carefully that where some questions require details of how hardware or software achieves its task, descriptions of user actions will NOT earn marks
  - f) No computer equipment, books or notes may be used in this examination
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1.
    - a) Draw a labelled configuration diagram to show how input, output and storage devices are linked to a computer. Mark arrows on your lines to show the direction that DATA flows. [4]
    - b) Describe the limitations imposed by speech input devices. [4]
    - c) Briefly describe TWO applications that make use of OMR technology. [4]
    - d) Briefly explain how to set up mail merge using a word processing program. [4]
    - e) Explain how the structure of a database is first defined BEFORE any data is entered into it. [4]
    - f) The format of a student identity number at a college is AA99AA99999. It is composed of:
      - 2 letters representing the department within the college
      - 2 digits representing the year the student was first enrolled (12 for the year 2012)
      - 2 letters giving the first two letters of student family name
      - 5 digits representing a unique student number
      - i) State the advantage of a code of this shape compared with a simple 7-digit unique number. [1]
      - ii) Describe carefully THREE different validations that could be made on this code – identify which part of the code in EACH case. [3]
    - g) PIN numbers used with ATM cards are only 4 digits yet there are obviously far more than 9999 bank accounts worldwide. Explain carefully how this restriction still ensures reasonable security in the use of cash cards. [4]
    - h) Briefly describe ways in which a systems analyst could obtain information about an existing business system in order to upgrade and improve it. [4]
    - i) Identify particular applications that would typically be programmed in EACH of the four following languages:  
C, PASCAL, JAVA, Database language (e.g. Access) [4]
    - j) State the job titles of the FOUR people who would perform the following computer tasks, assuming they all work in a large commercial institution:
      - i) Draw a system flowchart showing how data flows through a complete business system.
      - ii) Issue passwords to LAN users.
      - iii) Key in customer order data.
      - iv) Write the job specification to recruit a new analyst-programmer. [4]
  2. Describe a realistic BUSINESS use of a spreadsheet program that a large company uses regularly – NOT PAYROLL. A detailed answer is expected and so a trivial application should be avoided.
    - a) Show a sample of what the model would look like on screen – if it is lengthy, only part need be shown. [4]
    - b) Explain HOW parts are likely to be formatted to suit the user. [6]
    - c) Explain how built-in functions are used to achieve the final results. [6]
    - d) Explain how the model might be used as a template in the future as conditions change. [4]

3. a) Briefly list and describe the main stages of the systems life cycle IN THEIR NATURAL ORDER. [6]  
 b) Identify the people that the systems analyst will normally meet during his or her normal work. In EACH case, discuss the reasons why he or she would meet that person. [6]  
 c) File design is one of the tasks that the systems analyst undertakes. Explain how he or she decides whether a particular file should be organised as serial, sequential or indexed sequential. [4]  
 d) Explain how the analyst decides which programming language should be used to develop a new system. [4]
4. You have been asked to write a 10-page document and provide it as a word processing file. For EACH feature below explain:  
 • WHEN it would be used  
 • WHY it would be used and  
 • HOW it is implemented  
 Provide details on EACH of the following:  
 a) Changes of font [3]  
 b) Cut and paste [4]  
 c) Justification [4]  
 d) Print preview [3]  
 e) Search and replace [4]  
 f) Word-wrap [2]  
 A good answer will take into account current popular word processing packages.
5. a) Distinguish clearly between application software and system software, giving a typical example for EACH. [4]  
 b) For EACH of the programs listed below, state whether that program is:  
 • a general purpose package  
 • a special purpose application package OR  
 • system software  
 i Data sort  
 ii Invoice production  
 iii Payroll  
 iv Spreadsheet  
 v Virus checker  
 vi Word processor [6]  
 c) Describe, in detail, FIVE significantly different facilities that an operating system provides. [10]
6. a) Distinguish clearly between the terms validation and verification. [4]  
 b) Explain why automatic validation is performed when data is FIRST entered into a computer. [4]  
 c) Below is CORRECT data for a particular product:  
 Name Bread  
 ProductCode 325414  
 SellByDate 22/12/2012  
 StockLevel 59  
 Write down similar data for another product but with an error in EACH field which the COMPUTER would be able to detect as being invalid. Ensure the errors are of DIFFERENT types. For EACH error, explain why the program would be able to detect that error. [8]  
 d) Give TWO clearly defined examples where a computer would NOT be able to detect an error, explaining why in EACH case. [4]