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# COMPUTER APPRECIATION & APPLICATIONS

Monday 6<sup>th</sup> June 2022

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## Time allowed

Three hours

## Instructions

- Ensure that you pay particular attention to words in **bold**.
- Write the question number next to each answer in your answer booklet.
- You are **not** required to rewrite the question in your answer booklet.

## Information

- Different questions may carry a different number of marks.
- Marks for each question are shown in [ ].

## Advice

- Read each question carefully before you start to answer it.
- Use the full time permitted and check all your answers.

## Materials

- Notes or books are **not** permitted.
- Non-programmable calculators are permitted.



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**ANSWER FOUR QUESTIONS IN TOTAL**  
**ANSWER QUESTION ONE AND ANY OTHER THREE QUESTIONS**

1. (a) State **four** tasks that a network supervisor performs in a typical week. [4 marks]
- (b) State **four** disadvantages of introducing computing systems within an organisation. [4 marks]
- (c) Draw a diagram showing how each of the following are linked, including arrows to show the direction of flow. You do not need to show control signals.
  - Storage devices
  - Input devices
  - CPU
  - Output devices
 [4 marks]
- (d) Spreadsheets use absolute and relative addresses.
  - (i) Outline the difference between absolute and relative addresses. [2 marks]
  - (ii) Outline the way an absolute address can be incorporated into a formula and copied to other cells. [2 marks]
- (e) Explain the difference between RAM and ROM, including a typical use for each. [4 marks]
- (f) Explain the difference between LAN and WAN. [4 marks]
- (g) State **four** sub-systems available within an integrated accounts package. [4 marks]
- (h) State how each of the following operates:
  - (i) Modem [1 mark]
  - (ii) Multiplexor [1 mark]
  - (iii) Packet switching [1 mark]
  - (iv) ISP [1 mark]
- (i) Define what is meant by the term 'data validation' including **two** types of validation that can be applied to a 5-digit employee number. [4 marks]
- (j) Copy and complete the following text, replacing the letters P, Q, R, and S with the correct word/phrase:  
 "A **P**, which is organised sequentially, consists of a collection of **Q**, held in **R** order. Finding a particular data item on it is **S** than if it was organised serially." [4 marks]

2. (a) (i) Draw a labelled diagram showing the layout of the full screen of a spreadsheet program before any data is entered. [5 marks]
- (ii) State **four** types of data that can be entered in a cell. [4 marks]

**(b) Engineering organisation case study**

An engineering organisation makes metal parts for other organisations to incorporate into their products. The company uses a database program to maintain details of all its stock, outstanding orders and the scheduling of all its machinery in the production process.

- (i) Describe how the structure of a new database in the engineering organisation is determined. [5 marks]
- (ii) Copy and complete the following table with **six** additional fields for the engineering organisation's database:

Field name	Data type	Reason for this field
PartNumber	Integer	Unique product identifier

[6 marks]

3. (a) A programmer has been asked to write a program which will analyse the existing records of a retail company to predict sales trends. The systems analyst gives the programmer a complete specification of the required program.  
Describe the subsequent stages of developing this program in the correct order, considering the scale of this challenge in a commercial environment. [8 marks]
- (b) Explain the difference between high-level and low-level programming languages. [4 marks]
- (c) State **four** high-level programming languages including a typical application area written in each language. [8 marks]
4. (a) (i) Describe the physical processes that occur within a machine when a scanner is used to take a copy of a picture then saved on a disk file. [5 marks]
- (ii) Suggest ways a scanned picture can be edited by a user. [5 marks]
- (b) Many book lending libraries now issue members with a single barcoded ticket.
- (i) Describe the steps taken by both the librarian and the computer when a book is borrowed. [6 marks]
- (ii) Outline how the system ensures that a member cannot borrow more than the maximum number of books permitted. [4 marks]
5. (a) Describe the main stages of the systems life cycle in order. [6 marks]
- (b) Suggest the job roles with whom a systems analyst must confer, including reasons for your suggestion. [10 marks]
- (c) Explain how a systems analyst decides whether a file should be organised as serial, sequential or indexed sequential. [4 marks]
6. A sequential file holds the details of all employees in an organisation.
- (a) State the steps a specially written program (not a database) must take to print the details of employees over the age of 60. [8 marks]
- (b) Describe the organisation of a file system which allows quick access to a single record. [8 marks]
- (c) State the fields that must be included in an employee's record to enable the organisation to contact employees who have not had a pay rise in the last three years. [4 marks]

**END OF QUESTIONS**