

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in. Write in dark blue or black pen. You may use a soft pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, highlighters, glue or correction fluid.

DO NOT WRITE IN ANY BARCODES.

Answer all questions.

ο

No marks will be awarded for using brand names of software packages or hardware.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [] at the end of each question or part question.

| For Examiner's Use |
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This document consists of 16 printed pages.



| 3) | mouse | bride |
|----|--|---------|
| | 2 Nain, using examples where appropriate, the meaning of these computer terms. mouse | |
| | | [2] |
| | | [2] |
| b) | search engine | |
| | | |
| | | [2] |
| c) | buffer | |
| 6) | Dunei | |
| | | |
| | | [2] |
| d) | RAM | |
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| e) | download | |
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| D | escribe two benefits of using top down design to develop computer software. | 1 |
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| | 3 Describe two benefits of using top down design to develop computer software. | non |
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| | [2] | |
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| | Vrite a routine using a for to loop which inputs 100 numbers and outputs how many of he numbers were negative. | |
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| • | וניז | |
| • | [3] | |
| (| Computer systems can be affected in various ways which could lead to data corruption. | |
| (| Give two ways that data might be corrupted and suggest a method of protection for each. | |
| | | |
| | Corruption 1 | |
| | | |
| | Protection method 1 | |
| | | |
| | Corruption 2 | |
| | | |
| | Protection method 2 | |

| 2 [2] A supermarket uses a computer system to control and order stock. All products sold are dentified with a bar code which can be read at a Point Of Sale (POS) terminal. (a) Apart from stock control, give one advantage to the supermarket of having bar codes on the products. [1] (b) Give one advantage to the customer of using POS technology. | | Mary Mary |
|---|-----|---|
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| c) Describe how a computerised stock control system works. | | |
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| | (-) | Describe have a computational start control evotory works |
| | (C) | Describe now a computensed stock control system works. |
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| | ny people now bank through the Internet rather than using banks located in towns | 36 |
|-----|--|----|
| a) | Give one advantage to a bank that offers Internet banking. | ~ |
| | 5 hy people now bank through the Internet rather than using banks located in towns. Give one advantage to a bank that offers Internet banking. | |
| | | |
| | [1] | |
| (b) | Give one disadvantage to a bank that offers Internet banking. | |
| () | | |
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| | [1] | |
| | | |
| (c) | Give two advantages to customers of using Internet banking. | |
| | 1 | |
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| (d) | Give two disadvantages to customers of using Internet banking. | |
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| [1] b) In spite of these safeguards, unauthorised access to the database is still possible. What could be done: (i) to prevent data being used by unauthorised people? | | | access to a database, a user must first type in a user ID and then a particular |
|--|-----|------------|--|
| [1] b) In spite of these safeguards, unauthorised access to the database is still possible. (i) to prevent data being used by unauthorised people? | vhi | ch n | eeds to be verified. |
| (b) In spite of these safeguards, unauthorised access to the database is still possible. What could be done: (i) to prevent data being used by unauthorised people? (ii) to prevent data being used by unauthorised people? [1] (iii) to prevent loss of data once the database has been illegally accessed? [1] (ii) to prevent loss of data once the database has been illegally accessed? [1] (iii) to prevent loss of data once the database has been illegally accessed? [1] (iii) to prevent loss of data once the database has been illegally accessed? [1] (iii) to prevent loss of data once the database has been illegally accessed? [1] (iii) to prevent loss of data once the database has been illegally accessed? [1] (iii) to prevent loss of a Data Protection Act. Give two requirements of a Data Protection Act. [1] 2 [2] 2 [2] | (a) | Ηo | w is a password usually verified? |
| (b) In spite of these safeguards, unauthorised access to the database is still possible. What could be done: (i) to prevent data being used by unauthorised people? [1] (ii) to prevent loss of data once the database has been illegally accessed? [1] (ii) to prevent loss of data once the database has been illegally accessed? [1] (c) Personal data is protected to some extent by a Data Protection Act. Give two requirements of a Data Protection Act. 1 2 | | | |
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| (ii) to prevent loss of data once the database has been illegally accessed? [1] (c) Personal data is protected to some extent by a Data Protection Act. Give two requirements of a Data Protection Act. 1 | | (i) | to prevent data being used by unauthorised people? |
| (ii) to prevent loss of data once the database has been illegally accessed? [1] (c) Personal data is protected to some extent by a Data Protection Act. Give two requirements of a Data Protection Act. 1 2 121 | | | |
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| (c) Personal data is protected to some extent by a Data Protection Act. Give two requirements of a Data Protection Act. 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | | |
| (c) Personal data is protected to some extent by a Data Protection Act. Give two requirements of a Data Protection Act. 1 | | (ii) | to prevent loss of data once the database has been illegally accessed? |
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| (c) Personal data is protected to some extent by a Data Protection Act. Give two requirements of a Data Protection Act. 1 | | | [1] |
| requirements of a Data Protection Act. 1 2 2 1 1 1 1 2 1 | | | |
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9 Many computer networks use the RING and STAR configurations.

www.papacambridge.com Compare the advantages and disadvantages of both types of networks. Include diagrams the ring and star configurations to help in your discussion.

Diagram of ring network

Diagram of star network

| Advantages and disadvantages of star networks | |
|---|-----|
| | |
| | |
| | |
| Advantages and disadvantages of ring networks | |
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| | [5] |
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www.papaCambridge.com 8 10 A large city has decided to computerise totally its traffic management system. Traffic and electronic road signs are now under automatic computer control. (a) Sensors are placed around the city to gather information about traffic. Describe what information would need to be gathered. [2] (b) Describe two ways the information from the sensors could be sent to the central computer which is located several miles away. 1 2 [2] (c) Give two advantages of having the traffic in the city controlled in this way. 1

2

[2]

- **11** Mike has decided to send information to Asif by attaching a file to an email.
 - (a) Describe what happens after Mike writes his email, attaches the file and clicks "send".

www.papacambridge.com [2] _____

(b) Describe two potential problems when sending attachments via emails.

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| 2 | |
| | [2] |

12 (a) A small shop selling books, CDs and DVDs uses a number of spreadsheets track of its stock. One of the spreadsheets showing Sci-Fi stock is shown below.

| 10 A small shop selling books, CDs and DVDs uses a number of spreadsheets track of its stock. One of the spreadsheets showing Sci-Fi stock is shown below. A B C D 1 Sci-Fi Stock Item Code Item Cost (\$) Number in stock Stock value (\$) | | | | | | |
|---|-----------|----------------|-----------------|------------------|--|--|
| | Α | В | С | D | | |
| 1 | | Sci-Fi | Stock | | | |
| 2 | Item Code | Item Cost (\$) | Number in stock | Stock value (\$) | | |
| 3 | 15131624 | 25.00 | 15 | 375.00 | | |
| 4 | 18316925 | 16.50 | 10 | 165.00 | | |
| 5 | 18560003 | 30.00 | 10 | 300.00 | | |
| 6 | 12111151 | 12.50 | 20 | 250.00 | | |
| 7 | 00516344 | 11.50 | 20 | 230.00 | | |
| 8 | 15821612 | 17.00 | 15 | 255.00 | | |
| 9 | 10322491 | 23.50 | 20 | 470.00 | | |
| 10 | | | Total Value | 2045.00 | | |

(i) How many columns are there in the above spreadsheet?

[1] (ii) What formula must be in D3 to calculate the stock value of item 15131624? [1] (iii) What formula needs to be placed in cell D10 to calculate the total value of the stock? [1] (iv) Data in B7 was found to be incorrect. The value in this cell was changed to 12.50. Which cells would automatically change when this was done? [1] (b) The owners have decided to sell the shop and all its stock. They will produce a word processed report to advertise the sale. Describe how the owners will create this report which will contain text, data from the stock spreadsheets, pictures of the shop and some of its stock. [3]

| | | 12 | |
|----|-----|---|-------|
| | | 11 · · · · · · · · · · · · · · · · · · | |
| 13 | | 11 rge car showroom employs a systems analyst to computerise their existing manuferms. Write down four of the stages in Systems Analysis. 1 | Can |
| | (a) | Write down four of the stages in Systems Analysis. | |
| | | 1 | |
| | | 2 | |
| | | 3 | |
| | | 4 | [4] |
| | (b) | Describe two effects on the workforce of introducing the new computer system. | |
| | | 1 | |
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| | | 2 | |
| | | | [2] |
| | | Give two benefits to the car showroom of allowing customers to access details of ca for sale using the Internet. | ars |
| | | 1 | |
| | | | |
| | | 2 | |
| | | | [2] |
| | | | |
| ŀ | | cribe three of the stages taken to create an expert system to help in medical diagnosities | s. |
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| | 2. | | •••• |
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| | 3. | | •••• |
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| | | | [3] |

15 A database has been produced showing solar system statistics.

| A database ha | 12database has been produced showing solar system statistics.Name of planetDistance from sun (x10 ⁶) (km)Number of of moonsMaximum surface temperature (°C)Diameter (km)Mercury58004274880 | | | | | | |
|----------------|---|-----------------------|--------------------|---|------------------|--|--|
| Name of planet | Distance from sun (x10 ⁶) (km) | Number of moons | Number of rings | Maximum surface temperature (°C) | Diameter (km) | | |
| Mercury | 58 | 0 | 0 | 427 | 4880 | | |
| Venus | 108 | 0 | 0 | 480 | 12100 | | |
| Earth | 150 | 1 | 0 | 58 | 12756 | | |
| Mars | 228 | 2 | 0 | 17 | 6787 | | |
| Jupiter | 778 | 16 | 3 | -150 | 143200 | | |
| Saturn | 1427 | 18 | 1000 | -180 | 120000 | | |
| Uranus | 2871 | 15 | 11 | -210 | 51800 | | |
| Neptune | 4497 | 8 | 4 | -214 | 49528 | | |
| Pluto | 5914 | 1 | 0 | -220 | 2330 | | |

(a) How many records are there in this database?

[1]

(b) The following search condition was typed in:

(Number of moons > 0) AND (Diameter (km) < 15000)

Using Name of planet, write down the results of this search:

[2]

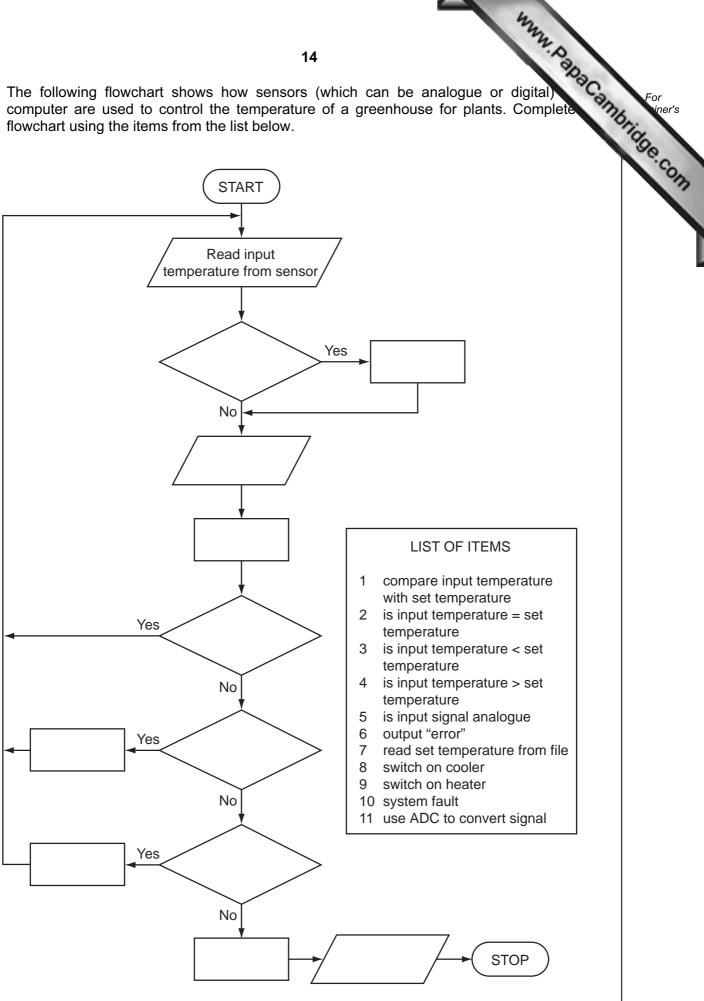
(c) Write down a search condition to find out which planets have rings or have a diameter more than 50000 km.

[2]

- (d) Name a different validation check for each of the following fields.
 - (i) Maximum surface temperature (⁰C) (ii) Name of planet [2]

| | | 13 hun p |
|---|-----|--|
| | (e) | 13 The data in the database was sorted in descending order using the Number of field. Using Name of planet only, write down the results of this sort. |
| | | |
| | | [2] |
| 6 | (a) | What is meant by virtual reality? |
| | | |
| | | [1] |
| | (b) | Describe two special devices that are used for man-machine interaction in virtual reality systems. |
| | | 1 |
| | | |
| | | 2 |
| | | [2] |
| | (c) | Give two examples of typical output from a virtual reality system. |
| | | 1 |
| | | |
| | | 2 |
| | | [2] |
| | (d) | Give one example of a use of virtual reality. |
| | (9) | |
| | | [1] |

17 The following flowchart shows how sensors (which can be analogue or digital) computer are used to control the temperature of a greenhouse for plants. Complete flowchart using the items from the list below.



[6]

| | | 15 mall library uses a database to monitor books being borrowed. Two of the tables abase are linked together: books borrowed by the customers customer details ch customer has a library card containing a unique customer code. Each book contains a | | |
|----|-----|--|---|--|
| 18 | | A small library uses a database to monitor books being borrowed. Two of the tables database are linked together: | | |
| | • | books borrowed by the customers customer details | G | |
| | | ch customer has a library card containing a unique customer code. Each book contains a que bar code. | T | |
| | (a) | Which data item could link the two tables together? | | |
| | | [1] | | |
| | (b) | Today's date is 11 November 2008. Describe how the system would decide automatically which books were overdue and how the customers could be contacted to return the overdue books. | | |
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| | | [3] | | |

- www.papaCambridge.com 19 The manufacturing cost of producing an item depends on its complexity. A con manufactures three different types of item, with costs based on the following calculation
 - Item type 1: item cost = parts cost * 1.5 Item type 2: item cost = parts cost * 2.5 Item type 3: item cost = parts cost * 5.0

The company makes 1000 items per day.

Write an algorithm, using pseudocode, flowchart or otherwise, which

- inputs the item type and parts cost of each item .
- outputs the item cost for each item
- calculates and outputs the average (mean) item cost per day (based on 1000 items being made).

| [5] |
|-----|

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