|                   |  | www.tere         |
|-------------------|--|------------------|
|                   | UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIC<br>International General Certificate of Secondary Education | MMM + HIEMREP 20 |
| CANDIDATE<br>NAME |  |                  |
| CENTRE<br>NUMBER  | CANDIDATE<br>NUMBER  |                  |
| INFORMATIO        | AND COMMUNICATION TECHNOLOGY   | 0417/13          |
| Paper 1           |  | May/June 2012    |
| Candidates and    | swer on the Question Paper.  | 2 hours          |

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.

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

Answer all questions.

03

4 6

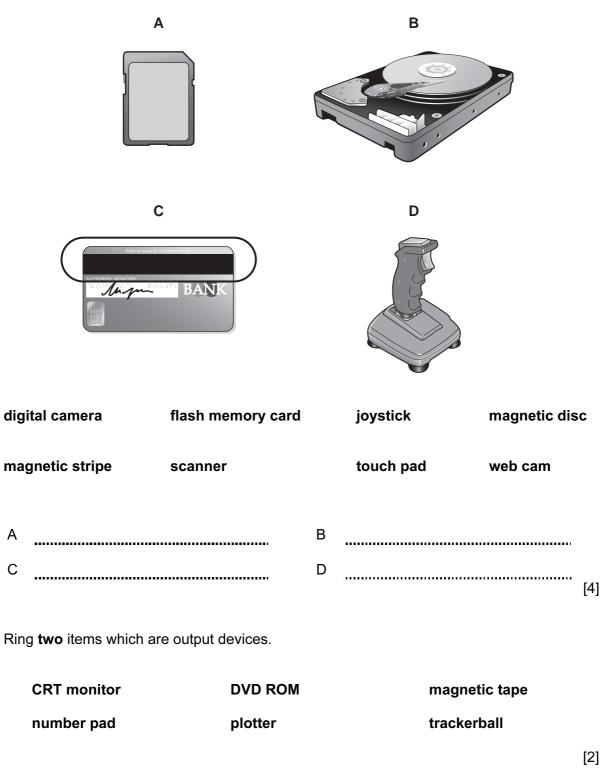
> At the end of the examination, fasten all your work securely together. The number of marks is given in brackets [] at the end of each question or part question.

| For Examiner's Use |  |  |  |
|--------------------|--|--|--|
|                    |  |  |  |
|                    |  |  |  |
|                    |  |  |  |
|                    |  |  |  |

This document consists of 13 printed pages and 3 blank pages.



1 Name the items **A**, **B**, **C** and **D** using the words from the list.



2

3 Tick **True** or **False** next to each of these statements.

|   | True | False |
|---|------|-------|
| Control software is used to create slide shows.         |      |       |
| Palmtop computers do not have internal DVD drives.      |      |       |
| Presentation software can be used to produce databases. |      |       |
| An internet browser uses an inference engine.           |      |       |
| Motors are output devices.                              |      |       |

[5]

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4 Complete each sentence below using **one** item from the list.

| A bar code reader | A dot matrix printer | A graphics tablet      |
|-------------------|----------------------|------------------------|
| A laser printer   | A microphone         | A multimedia projector |
| A presence check  | A speaker            | A temperature sensor   |
| A magnetic tape   |                      |                        |

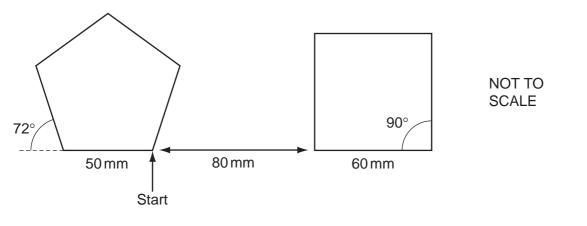
- (a) produces hard copy in harsh conditions.(b) inputs sounds.
- (c) is used to show slideshows.
- (d) is a validation rule.
- (e) is used to create backups from a server's hard disc.

[5]

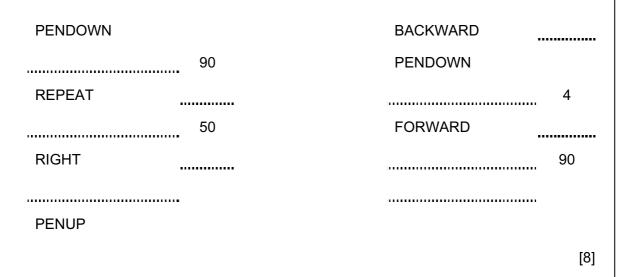
The head teacher of a school wants to build a weather station. She wants to use a 5 For computer to collect the results. Examiner's Use List **three** sensors that would be needed. 1 2 3 [3] 6 Draw four lines on the diagram to match the use to its most appropriate input device. Input device Use to select options from a list keyboard to type data into a database optical mark reader to input candidate examination answers chip reader to input data directly from a bank card mouse

7 A floor turtle can use the following instructions:

| INSTRUCTION | MEANING  |  |
|-------------|--|--|
| FORWARD n   | Move <i>n</i> mm forward                         |  |
| BACKWARD n  | Move <i>n</i> mm backward                        |  |
| LEFT t      | Turn left <i>t</i> degrees                       |  |
| RIGHT t     | Turn right <i>t</i> degrees                      |  |
| PENUP       | Lift the pen                                     |  |
| PENDOWN     | Lower the pen                                    |  |
| REPEAT n    | Repeat the following instructions <i>n</i> times |  |
| END REPEAT  | Finish the REPEAT loop                           |  |



Complete the set of instructions to draw this shape by filling in the blank lines.



5

For Examiner's Use 8 Tick **True** or **False** next to each statement describing encryption.

TrueFalseEncryption prevents hackers from understanding the data.IEncryption destroys viruses.IEncryption prevents unauthorised access to computer systems.IEncryption is the scrambling of data.I

[4]

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**9** A group of car mechanics wants to have an expert system to help them with their work in diagnosing car engine faults.

Describe how such a system would be created.

[5]

**10** Describe online processing of data, using the booking of airline tickets as an example. [4] ..... 11 A manager of a new company has just purchased some computers. She wishes to connect these computers together to form a LAN. Name and describe three network devices she might need to have in order to achieve this. Device 1 ..... Description Device 2 Description Device 3 Description

[6]

For Examiner's Use **12** Chi has asked Toby, a systems analyst, to create a new database system for his property agency in France. He only deals with apartments and houses. Here are some of the questions customers ask:

8

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Have you got a house for less than €500000? Have you got an apartment with three bedrooms? Have you got a house with more than 160 square metres floor space?

(a) Complete the design table below filling in the field names and the **most** appropriate data types to create a database which would answer these questions.

| Field name | Data type |
|------------|-----------|
|            | Integer   |
| Price      |           |
|            |           |
|            |           |

[6]

(b) Compare and contrast parallel running and direct changeover as ways of implementing the new database system.

[5]

13 A teacher has developed a new system for keeping a record of student examination marks on her laptop and wishes to test it. Each examination is marked out of 50. Identify **three** types of test data she could use and describe each type using an example. Туре 1 Description Туре 2 Description Туре 3 Description [6] 14 Schools are concerned with the possibility that students are using the schools' internet connections to access undesirable sites. Name and describe two security methods the schools could use to prevent this from happening. Method 1 Description Method 2 Description ..... [4] .....

For

Examiner's Use **15** Paul, a manufacturer of goods, offers discounts. The discounts are coded D, N or P. Paul keeps the details on this spreadsheet.

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(Commas are used as delimiters in the formulae shown below.)

|    | Α    | В       | с   | D                       |
|----|------|---------|---|-------------------------|
| 1  | Code | Rate    |   |                         |
| 2  | D    | 10%     |   |                         |
| 3  | Ν    | 15%     |   |                         |
| 4  | Р    | 20%     |   |                         |
| 5  |      |         |   |                         |
| 6  | Code | Price   | Discount  | <b>Discounted Price</b> |
| 7  | D    | \$4.00  | =IF(A7="D",B7*\$B\$2,IF(A7="N",B7*\$B\$3,IF(A7="P",B7*\$B\$4)))       |                         |
| 8  | Р    | \$2.85  | =IF(A8="D",B8*\$B\$2,IF(A8="N",B8*\$B\$3,IF(A8="P",B8*\$B\$4)))       |                         |
| 9  | D    | \$1.55  | =IF(A9="D",B9*\$B\$2,IF(A9="N",B9*\$B\$3,IF(A9="P",B9*\$B\$4)))       |                         |
| 10 | Ν    | \$0.98  | =IF(A10="D",B10*\$B\$2,IF(A10="N",B10*\$B\$3,IF(A10="P",B10*\$B\$4))) |                         |
| 11 | D    | \$4.05  | =IF(A11="D",B11*\$B\$2,IF(A11="N",B11*\$B\$3,IF(A11="P",B11*\$B\$4))) |                         |
| 12 | D    | \$10.00 | =IF(A12="D",B12*\$B\$2,IF(A12="N",B12*\$B\$3,IF(A12="P",B12*\$B\$4))) |                         |
| 13 | Р    | \$11.95 | =IF(A13="D",B13*\$B\$2,IF(A13="N",B13*\$B\$3,IF(A13="P",B13*\$B\$4))) |                         |
| 14 | D    | \$5.15  | =IF(A14="D",B14*\$B\$2,IF(A14="N",B14*\$B\$3,IF(A14="P",B14*\$B\$4))) |                         |
| 15 | D    | \$5.25  | =IF(A15="D",B15*\$B\$2,IF(A15="N",B15*\$B\$3,IF(A15="P",B15*\$B\$4))) |                         |
| 16 | Ν    | \$4.50  | =IF(A16="D",B16*\$B\$2,IF(A16="N",B16*\$B\$3,IF(A16="P",B16*\$B\$4))) |                         |
| 17 | Ν    | \$7.25  | =IF(A17="D",B17*\$B\$2,IF(A17="N",B17*\$B\$3,IF(A17="P",B17*\$B\$4))) |                         |
| 18 | Ν    | \$14.50 | =IF(A18="D",B18*\$B\$2,IF(A18="N",B18*\$B\$3,IF(A18="P",B18*\$B\$4))) |                         |

(a) Explain what the formula in cell C7 does.

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|   | [6] |
|---|-----|
| (b) What value would you expect to see in cell C12? |     |
|   | [1] |

|    | (c) | The formula was entered into cell C7 using a keyboard.<br>Explain how to make this formula appear in cells C8 to C18 by just using a mouse.                  | For<br>Examiner's<br>Use |
|----|-----|--|--------------------------|
|    |     |  |                          |
|    |     |  |                          |
|    |     |  |                          |
|    |     |  |                          |
|    |     | [3]  |                          |
|    | (d) | What formula should be typed into cell D7 to calculate the discounted price?   |                          |
|    |     | [1]  |                          |
|    | (e) | Paul could extend this spreadsheet to calculate his total profit. He could then use it as a model.<br>Give <b>two</b> reasons why financial models are used. |                          |
|    |     | 1  |                          |
|    |     |  |                          |
|    |     | 2  |                          |
|    |     | [2]  |                          |
| 16 | Des | scribe <b>four</b> features of a graphical user interface (GUI).   |                          |
|    | 1   |  |                          |
|    | 2   |  |                          |
|    |     |  |                          |
|    | 3   |  |                          |
|    |     |  |                          |
|    | т   | [4]  |                          |
|    |     |  | 1                        |

11

**17** A head teacher wishes to publicise school activities to make his school better known in the neighbourhood. He could do this by using the school's website or producing a magazine using DTP to be delivered by hand.

Discuss the advantages and disadvantages of each method.

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| 18 | Robots are now used on many car production lines.<br>Describe how their use has affected the nature of employment in the car industry. |
|----|--|
|    |  |
|    |  |
|    |  |
|    |  |
|    |  |
|    |  |
|    |  |
|    |  |
|    |  |

| <br> | <br>    |
|------|---------|
| <br> | <br>[6] |

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