Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

INFORMATION AND COMMUNICATION TECHNOLOGY **0417/12**

Paper 1 Theory **October/November 2016**

2 hours

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces at the top of this page and any additional pages you use.
Write in dark blue or black pen.
Do not use staples, paper clips, 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.

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.

This document consists of **14** printed pages and **2** blank pages.

CAMBRIDGE
International Examinations

[Turn over

1 There are a number of different network devices associated with computers.

Give the most appropriate type of communication device that fits the following descriptions.

(a) This device connects a LAN to the internet.

....[1]

(b) This device transmits data to specific computers in a network.

....[1]

(c) This device broadcasts data to all computers in a network.

....[1]

(d) This device connects one LAN to another LAN that uses the same protocol.

....[1]

2 (a) A computer system consists of hardware and software.

Explain what is meant by software.

....

....[2]

(b) Name the type of software from its description.

(i) This type of software lets you manage the hardware and software resources.

....[1]

(ii) Give an example of this type of software.

....[1]

(iii) This type of software lets you carry out tasks such as creating a document or an image.

....[1]

(iv) Give an example of this type of software.

....[1]

3 Tick whether the following devices are **input**, **output** or **backing storage**.

	input (✓)	output (✓)	backing storage (✓)
Motor			
CD-R			
Web cam			
Printer			

[4]

4 Sending emails to someone involves netiquette.

Tick whether the following statements are **true** or **false**.

	true (✓)	false (✓)
If capital letters are used in emails, it is considered as 'shouting'.		
You should always use coloured text and coloured backgrounds in emails.		
You should reply to all spam emails.		
bcc means blind carbon copy.		

[2]

Question 5 begins on page 4

5 The directors of a multi-national car company need to communicate with each other. They have decided that the best way to do this is through web-conferencing.

(a) Describe web-conferencing and how it could be used in this scenario.

....

....

....

....

....

....

....

....[4]

(b) The directors wish to have a conference with their managers in other countries and are considering the use of video-conferencing.

Name **three** pieces of hardware that would be needed in order to hold a video-conference.

1 ....

....

2 ....

....

3 ....

....

[3]

(c) Describe **three** drawbacks of setting up and using video-conferencing.

....

....

....

....

....

....

....

....

....

....

....

....[6]

6 Tick the most appropriate storage medium for each of the following uses.

	Fixed Hard Disk (✓)	Blu-ray (✓)	Magnetic Tape (✓)	Memory Card (✓)
Storing a database of books in a school library				
Storing photographs in a digital camera				
Companies distributing HD movies				
Storing the backup of a file server				

[4]

 [Turn over

7 A teacher has produced a piece of software and uses it to record exam marks. Each exam has a total of 100 marks available. If a student does not take the examination then the mark awarded is 0.

	A	B	C	D
1				
2	Name of Student	Examination Mark	Pass or Fail	
3	Candidate A	20		
4	Candidate B	70		
5	Candidate C	45		
6				
7				
8				
9				

(a) Write a formula that would be entered in cell C3 to display the word **pass** if the value in B3 is more than 75 marks or the word **fail** if it is not.

....

....

....[3]

(b) The teacher wishes to test a formula on the spreadsheet and uses normal, abnormal and extreme test data.

Describe each of the following terms.

Normal Test Data ....

....

Abnormal Test Data ....

....

Extreme Test Data ....

....

[3]

8 Biometrics have replaced user IDs and passwords in a large number of systems.

Discuss the advantages and disadvantages of using biometric systems rather than more traditional security methods.

....

....

....

....

....

....

....

....

....

....[6]

9 Many countries have copyright legislation which applies to the purchasing of software.

Give **three** actions that would break copyright.

1 ....

....

2 ....

....

3 ....

....
[3]

10 Members of a US Conservation Unit recently discovered a species of frog new to New York. They identified the frog using an expert system called ARK.

(a) Describe how an expert system can be used to help identify a newly discovered type of animal.

....

....

....

....

....

....

....

....[4]

(b) Identify **two** other applications which make use of expert systems.

1 ....

....

2 ....

....
[2]

(c) A developer has created a plan for a new database.

Field Name	Data Type	Length of Field	Comment
Animal_ID	Text	5	2 letters followed by a 3 digit number
Name_of_animal	Text	25	
Animal_endangered?	Boolean		
Years_on_register	Numeric		

For each named field, give an appropriate validation check the developer should use.

Field Name	Validation Check
Animal_ID	
Name_of_animal	
Animal_endangered?	
Years_on_register	

[4]

(d) A report is generated from the results. The report contains headers and footers.

Explain, using examples, why headers and footers are used.

....

....

....

....

....

....

....

....[4]

11 A manager of a computer store has created a relational database to keep track of its orders. She has created two tables that are linked together.

Table A stores the products.
Table B stores the order details.

The following data shows some records from the database.

Table A: products

Product_ID	Product_name	Unit_price
1232	PC Base unit	$300
1246	Monitor TFT	$250
1678	Mouse	$9
2314	Keyboard	$9
3214	Laser printer	$250

Table B: order details

Order_ID	Product_ordered	Quantity
1231	1232	1
1233	1246	10
1234	1678	15
1235	2314	4
1236	2314	16
1237	3214	20

(a) Name the most suitable primary key in the products table.

....[1]

(b) Name a suitable foreign key in the order details table.

....[1]

(c) On the data shown in the tables above, the following search is to be carried out:

(Unit_price>$250)

Write down the Order_ID resulting from this search.

....[1]

(d) On the data shown in the tables at the start of question 11, the following search is to be carried out:

(Product_ID>2000) AND (Quantity<20)

Write down the Order_ID(s) resulting from this search.

....[2]

(e) The store has created a report with a new field called **total_price** to be calculated at run time. This field will contain the number of units ordered multiplied by the price of each unit.

Write an expression to produce this result.

....

....[2]

12 Explain, using examples, the difference between a function and a formula in a spreadsheet.

....

....

....

....

....

....

....

....[4]

13 A new system has been developed and documentation has been produced. There are two types of documentation; user and technical.

(a) Explain what technical documentation is used for.

....

....

....

....[2]

(b) Give **four** examples of the items found in technical documentation.

1 ....

....

2 ....

....

3 ....

....

4 ....

....
[4]

14 There are several security issues surrounding the use of smartphones. These include smishing and pharming.

(a) Describe different security measures that can be put into place to stop smishing or pharming attacks.

Smishing ....

....

Pharming ....

....
[2]

(b) Cookies are sometimes seen as a security threat when in reality they are only a nuisance.

Explain, using an example, what cookies are and why they are important to companies.

....

....

....

....

....

....[3]

15 Explain the differences between a blog and a wiki.

....

....

....

....

....

....

....

....[4]

16 (a) Describe what is meant by an intranet.

....

....

....

....[2]

(b) Describe what is meant by the internet.

....

....

....

....[2]

17 It has been announced that the UK banking industry will not now remove the use of cheques.

As more and more people are using debit cards to pay for goods, the cheque was to be phased out in the UK by 2018. The use of cheques for transactions is declining but still available.

Compare and contrast the use of debit cards and cheques to carry out transactions.

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....[8]

BLANK PAGE

16

BLANK PAGE