CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

INFORMATION AND COMMUNICATION TECHNOLOGY **0417/12**

Paper 1 Theory **February/March 2016**

2 hours

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your name, Centre number and candidate number 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 **15** printed pages and **1** blank page.

International Examinations

[Turn over

1 There are a number of different types of computer.

Write down the type of computer that best fits the following descriptions.

(a) A computer that is difficult to move and has a separate monitor and keyboard.

....[1]

(b) A portable computer that includes a physical keyboard.

....[1]

(c) A thin portable computer that has a touch screen and a battery in a single unit, not normally used to make phone calls.

....[1]

(d) A mobile phone that can be used as a computer.

....[1]

2 Tick whether the following are features of operating systems containing a command line interface (**CLI**) or a graphical user interface (**GUI**).

	CLI (✓)	GUI (✓)
Instructions have to be typed.		
Applications are represented by icons.		
Options are chosen from a menu.		
Many instructions have to be memorised.		

[2]

3 Tick whether the following statements about output devices are **true** or **false**.

	true (✓)	false (✓)
A multimedia projector is used to output slide shows.		
A laser printer is a type of page printer.		
An inkjet printer cartridge lasts longer than a laser printer toner cartridge producing the same output.		
A dot matrix printer produces very high quality printouts quickly.		

[2]

4 The use of computers has led to some employees changing their working patterns.

Complete the following sentences.

(a) Two or more employees doing the same job but working at different times is called

....[1]

(b) When a person is employed to work fewer hours than the normal working week, this is called

....[1]

(c) When employees work the full normal hours in a week but work at times which suit them and the employer, this is called

....[1]

(d) When an employee works the full normal hours in a week but works fewer days, this is called

....[1]

5 Describe **four** strategies that you could use to minimise the dangers of using social networking sites to make new friends.

1 ....

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2 ....

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3 ....

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4 ....

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[4]

6 Use examples to describe the difference between a weak password and a strong password.

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....[4]

7 The following diagram shows towns A and B and the two roads that connect them.

Describe how a satellite navigation system (sat nav) in a motor vehicle would calculate the quickest route from A to B.

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....[4]

8 Describe how data is sent from a networked computer to a computer on a different network.

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....[4]

9 (a) Describe **two** similarities between physical faxing and electronic faxing.

1 ....

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2 ....

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[2]

(b) Describe **three** differences between physical faxing and electronic faxing.

1 ....

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2 ....

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3 ....

....
[3]

10 In certain countries, the RFID chip in a passport is scanned when the passport is presented at an automated passport control gate.

(a) Give **three** items of information about the passport holder that are stored on the RFID chip.

1 ....

....

2 ....

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3 ....

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[3]

(b) Describe how RFID technology reads the details from the chip.

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....[3]

(c) Explain why RFID technology is used for reading data from passports.

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....[2]

11 The following is part of a database of cars (automobiles).

Make	Registration_number	Engine_size	Maximum_speed	Colour	Parking_sensors
Frod	K674 TUV	1.3	140	red	Y
Olep	K349 XUP	1.4	140	white	N
Yotoya	R123 AZN	2.0	160	blue	Y
Yotoya	U283 BBV	1.7	175	red	Y
Frod	K943 SCG	1.3	180	blue	Y

(a) You have been asked to design a suitable input screen which will enable this data to be entered.

Complete the following screen for one car only, **before** the data is entered.

[6]

(b) For each of the following fields, name and describe the most appropriate validation check. Assume that the values given in the numeric fields include the minimum and maximum values for those fields.

(i) Registration_number ....

....

....

....

(ii) Maximum_speed ....

....

....

....

[4]

Operators such as AND, OR, NOT, LIKE, >, <, =, >=, <=, <> can be used to search the database for information. A search for all the red Frod cars would look like this:

Make = "Frod"   **AND**   **Colour =** "red"

Use appropriate operators from the examples given to answer the following.

(c) Write down a search which will produce a list of the cars where the size of engine is greater than 1.4, in addition to all those cars which have parking sensors.

....[5]

(d) Write down the registration numbers of those cars that match the requirements of part **(c)**.

....

....[2]

12 This is part of a spreadsheet used to calculate workers' earnings after tax.

	A	B	C	D	E	F	G
1	Rate of income tax	25%					
2							
3		Hourly Rate of pay	Number of hours worked	Pay before tax	Tax paid	Pay after tax	
4	Amir Khan	£10.00	40	£400.00	£100.00	£300.00	
5	John Jones	£8.00	36	£288.00	£72.00	£216.00	
6	Pierre Gaston	£7.50	42	£315.00	£78.75	£236.25	
7	Jasvinder Sidhu	£8.50	40	£340.00	£85.00	£255.00	
8	Zhou Wenlin	£9.00	36	£324.00	£81.00	£243.00	
9							
10							

(a) Pay before tax is calculated by multiplying Hourly Rate of pay by Number of hours worked. Write down the formula which should be entered in cell D4.

....[1]

(b) The Tax paid by each worker is calculated by multiplying the Rate of income tax by their Pay before tax.

Without using numerical values and by using absolute referencing where appropriate, write down the formula which should be entered in cell E4.

....[3]

(c) Explain what absolute referencing is and why it is needed in this example.

....

....

....

....

....

....[3]

(d) Write down, using a function, the most efficient formula which should be entered in cell F9 to calculate the total pay of these 5 workers.

....[1]

13 HTTP is an internet protocol.

(a) Explain what is meant by HTTP.

....

....

....

....[2]

(b) Explain the differences between HTTP and HTTPS.

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....[2]

14 Give **four** reasons why an internet search to find relevant information is not always fast.

1 ....

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2 ....

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3 ....

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4 ....

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[4]

15 Describe the following file formats and explain the differences between them.

.txt ....

....

....

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.rtf ....

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[5]

16 The following is a word-processed worksheet to help 11-year-old students to understand part of ancient India.

> Patna, Bihar
> The present-day capital of the Indian state of Bihar, Patna, was once believed to be the greatest city on Earth.
> In 300 BC, a Greek ambassador, Megasthenes, wrote that Pataliputra (as Patna was then called) was '22 miles in circuit, with a wooden wall pierced by 64 gates and 570 towers, rivalling the splendours of Persian cities such as Susa and Hamadan'.
> Megasthenes spent time at the court of Chandragupta Maurya, India's first great emperor. Maurya presided over an empire stretching from Bengal to present-day Afghanistan from this majestic capital. Pataliputra was built on the southern banks of the Ganges at the confluence of the rivers Ganges, Son and Gandak. It had a significant Jain and Buddhist influence as both the Buddha and Mahavira founder of Jainism lived and preached nearby.
> King Asoka also had his capital at Pataliputra. The Agam Kuan or 'Bottomless Well' in which Asoka is said to have put his prisoners to death (before he became influenced by Buddhism) still exists in Patna today.

Describe **five** improvements to the worksheet that would make it more appealing to 11-year-old students.

1 ....

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2 ....

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3 ....

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4 ....

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5 ....

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[5]

17 Shape A has been transformed into shape B in three stages.
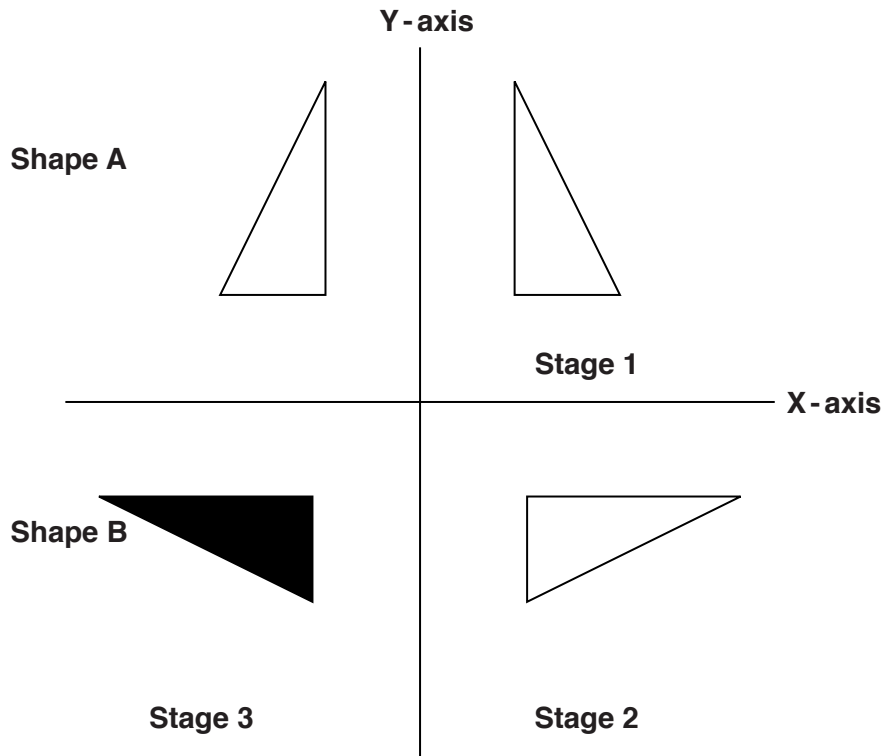
Describe, in detail, what has happened at each stage.

Stage 1 ....

....

Stage 2 ....

....

Stage 3 ....

....

....

....

[4]

18 Explain why you might want to insert a section break in a document.

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....[4]

19 "*Chip and PIN is the new, more secure way to pay with credit or debit cards*".

Discuss the accuracy of this statement with regard to developments, since and including the use of magnetic stripe cards at EFTPOS terminals and ATMs.

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....[8]

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