CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the March 2015 series

0417 INFORMATION AND COMMUNICATION TECHNOLOGY

0417/12	Paper 1 (Written Paper), maximum raw mark 100

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1 (a) **Three** from:

Temperature sensor
Light sensor
Humidity sensor
Number pad [3]

(b) **Three** from:

Sprinkler
Heater
Light
Motor [3]

2

Storing photos in a camera	✓			[1]
Storing file server backups		✓		[1]
Storing high definition movies			✓	[1]
Storing large numbers of payroll records		✓		[1]

3

Inputting diagrams as they are being drawn	**Graphics tablet**	[1]
Inputting printed text to a computer to be processed by another software package	**Optical Character Reader**	[1]
Inputting moving pictures, often pre-recorded, into a computer.	**Video camera**	[1]
Used by a pilot to control a flight simulator	**Joystick**	[1]

4

This type of network usually requires the use of WiFi			✓	[1]
Usually is cabled and often housed in a single building		✓		[1]
Covers a large area and is often connected using a router	✓			[1]
Requires the use of Wireless Access Points (WAPs)			✓	[1]

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5 (a) The device used for switching channels on a television is called   <u>**a remote control**</u>   [1]

(b) A method of inputting answers from a candidate's exam paper is called   <u>**OMR**</u>   [1]

(c) A printer which is suitable for producing large volumes of high quality printout is called   <u>**a laser printer**</u> [1]

6 Six from

Microprocessor stores required temperature as preset value
Microprocessor stores cooking time/start time as preset value
End times as preset values
Microprocessor subtracts cooking time from end time
Microprocessor compares the result with current time
If the current time and the start/calculated time are the same microprocessor switches on heater
Microprocessor compares temperature from sensor to pre-set temperature
If temperature is lower than preset value microprocessor sends a signal to actuators…
…to turn heater on
If higher than preset value microprocessor sends a signal to actuators…
…to turn heater off
Microprocessor compares current time with end time/start time preset value
If current time is less than end time preset value then cycle continues else…
…microprocessor sounds buzzer/beeper   [6]

7 (a) END REPEAT is missing after RIGHT 60/ instruction 5/ before instruction 6   [1]

BACKWARD 100 is missing after PENUP/ instruction 6/ before instruction 7   [1]

REPEAT 3 is missing after second PENDOWN/ instruction 7/ before instruction 8   [1]

(b) REPEAT 5 should be REPEAT 6   [1]

The first FORWARD 50 should be FORWARD 40   [1]

8 (a) Five from:

Account number
Sort code
Expiry date
Amount to withdraw
PIN
Card limit
Choice of language
Receipt required (Y/N)   [5]

(b) Six from:

No embarrassment of not having sufficient funds
Less time spent queuing
Can get money any time of day or night
Own bank may be further to travel to than nearest ATM
Can use most ATMs/does not have to be own bank
Have choice of languages so is easier to understand/be understood

When getting cash late at night may be susceptible to mugging
Machine may be out of order/run out of cash
Can only be given denominations in the machine
Limit to the amount that can be withdrawn

Must have at least one advantage and one disadvantage to gain full marks

One mark can be awarded for a reasoned conclusion   [6]

9   Eight from:

Parallel running – There is always the old system to fall back on in the event of the new system failing/information is not lost/always a second copy/Direct changeover – If things go wrong lose <u>all</u> data/ old system is not available
Direct changeover – benefits are immediately available
Parallel running is more expensive to implement as two sets of workers have to be employed
Direct changeover – less likelihood of errors as system will have been fully tested
Direct changeover is quicker to implement than parallel running
Direct changeover – training is more difficult to organise
Parallel running – training can be gradual

Direct changeover would be more suitable as company probably would not be able to afford to use parallel running
Direct changeover would be more suitable as the company needs it to be implemented quickly

Must have at least one mark for reason for choice in order to gain full marks   [8]

10   Seven from:

Mainframes/PCs/laptops needed for applications which require high speed processing
Mainframes/ PCs/laptops needed for applications which require greater internal memory capacity
Mainframes/ PCs/laptops needed for applications which require greater backing storage capacity
Mainframes/ PCs/laptops/tablet computers needed for applications which require bigger displays
Mainframes/ PCs/laptops needed for applications which require more manageable keyboards
Mainframes/ PCs/laptops needed for applications which require easy navigation from screen to screen
Mainframes/ PCs/laptops have access to wider range of application software
Still need mainframes to carry out complex mathematical functions
Mainframes/ PCs/laptops are easier to monitor use   [7]

11 (a) Four from:

If computer is switched off, work in RAM is lost but backing storage stores data for future use
More likely that data is accidentally deleted in RAM
RAM is more expensive than backing storage per unit of memory
RAM is bulkier than backing storage per unit of memory
Software package may be so large that it is physically impossible for RAM to store it.
Operating system may be so large that it is physically impossible for ROM to store it.
Data may need to be transferred from one computer to another and can't do that with RAM

[4]

(b) Four from:

Memory is needed which cannot be changed – ROM
Memory is needed which can be changed – RAM
Instructions that need to be unchanged have to be stored such as BIOS/ program cycles in a washing machine/program instructions in games
There needs to be memory that holds the work that is being currently done by the user
There needs to be memory that holds the software that is being currently used by the user
Non-volatile memory is needed – ROM   [4]

12 (a) Two from:

Can be sure every parent/student gets a copy
Easier to target who the head wants to get it
Not every home has a computer/internet access   [2]

(b) Three from:

Cost of delivery/paying someone to deliver
Costs school extra to print copies/ink costs
Extra cost if colour is included
Cannot use multimedia
More difficult to amend/update
Limited to parents of school children   [3]

13 (a) Four from:

Countif functions have a range and a criteria argument
In this example the range is A2:A10
The criterion is <31
It searches through the range A2:A10
Counts the number of cells/values…
…that contain numeric values…
…that have a value less than 31
Returns/displays that count.   [4]

(b) (i) 4 [1]

    (ii) **Two** from:

9-4 is 5
But this 5 now includes the blank cells/includes those who haven't worked at all
The blank cells are not greater than 33 but are still included [2]

14 (a) **Five** from:

Data is gathered/collected <u>from experts</u>
Knowledge base is designed/created
A structure to relate each item in the database/knowledge base is created
An interrogation technique to access the data is created
A user interface/method of displaying the results/method of inputting data/input
screen/output screen is designed/created
The inference engine is designed/created
The rules base is designed/created
The system is tested [5]

    (b) **Two** from:

Prospecting
Tax
Careers
Chess games
Animal/plant classification/identification [2]

15 (a) Text/alphanumeric [1]
Number/currency [1]
Date/number [1]
Number/integer [1]

    (b) Price (Rs) must be >=120 and <=255
1 mark for >=120 and 1 for '<u>and</u> <=255' [2]

    (c) (i) Year_released < 2007 OR Price (Rs) >= 145

1 mark for Year_released
1 mark for <2007
1 mark for Price (Rs)
1 mark for >= 145
1 mark for OR [5]

    (ii)   1,2,4,5 <u>if</u> answer to **(i)** is correct – apply follow through if answer to part **(i)** is incorrect

           -1 for each incorrect or missing/additional id number down to a minimum of 0   [2]

16 **Two** from:

    Lawful protection....
    ......Given to authors of software /companies /publishers
    Relates to the software/name/work the author/publisher/company created/published
    Prohibits purchaser from making unlimited copies/lend it to others/change the software/sell
    software/books/intellectual property without the company's/author's permission   [2]