UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Ordinary Level

MARK SCHEME for the May/June 2012 question paper

for the guidance of teachers

7010 COMPUTER STUDIES

7010/11 Paper 1, maximum raw mark 100

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

- Cambridge will not enter into discussions or correspondence in connection with these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2012 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

UNIVERSITY of CAMBRIDGE
International Examinations

1 1 mark per correct row.

	keyboard	microphone	speaker	webcam
VoIP		✓	✓	
video conferencing		✓	✓	✓
instant messaging	✓			

Correct Answer Only [3]

2 viruses e.g.
– use anti-virus software // regular virus scans
– don't open/use disks // don't open email attachments from unknown sources

Hacking e.g.
– passwords / user IDs
– firewalls

Spyware e.g.
– anti-spyware software
– delete cookies at end of session

Phishing e.g.
– don't open emails from unknown sources
– don't divulge personal information via email / unsecure website
– ensure that the site viewed has a valid security certificate (SSL)

tapping into wireless networks e.g.
– secured wifi network (protected by passwords)
– encryption / WEP
– no broadcast of network ID [5]

3 **(a)** Any **three** from:
– questionnaires
– interviews
– observation
– looking at existing paperwork [3]

(b) *0 marks for name, 2 marks for reasons which MUST tie up with name*

Questionnaires / interviews
– possible to obtain information direct from customers
– possible to obtain information direct from staff
– customers/staff can take questionnaires away to answer in own time
– interviews allow first hand information to be gathered/questions -asked can be tailored to the individual

Observation / existing paperwork
- sees first hand airport operations
- doesn't rely on opinions of customers/staff
- helps determine what hardware is needed
- helps to determine memory size/storage devices [2]

4 **(a)** Any **three** from:
- sound
- animations
- video
- links to Internet websites
- slide transitions
- use of colours [3]

(b) Any **two** from:
- less expensive because e.g. no paper/ink required
- can be interactive (chance to ask questions)
- can explain things better because e.g. addition of animation/video
- newsletters tend to be thrown away without reading/need distributing [2]

5 ***pendown***
forward 20
left 90
- - - - - - - - - - - -
forward 10
right 90 (1 mark)
forward 20
- - - - - - - - - - - -
right 90
forward 40
right 90 (1 mark)
forward 20
right 90
- - - - - - - - - - - -
forward 10
right 45 (1 mark)
forward 14
- - - - - - - - - - - -

repeat 3	or	left 90	
left 90	or	forward 14	
forward 14	or	left 90	
endrepeat	or	forward 14	(1 mark)
		left 90	
		forward 14	

- - - - - - - - - - - -
right 135
forward 20 (1 mark)
(PENUP) [5]

6 (a)

C	L	N	S	T	A	B
1	0	0	0	0	8	4
2	1	4		4	3	1
3	2	2		6	5	8
4		3	1	9	4	2
5	3	2		11	1	3
6		2	2	13	2	2
7		0		13	1	2
8		1	3	14	5	5
9		0		14	4	0
10	4	4		18	5	4
11	5	1		19		

1 mark 1 mark 1 mark 1 mark 1 mark < - - - - 1 mark - - - - >

[6]

(b) L = 5 }
} 1 mark
S = 3 }
T = 19 } 1 mark [2]

7 **(a)** *virtual tour*

Any **two** from:
- hot spots to move from room to room
- ability to zoom in and out of rooms
- ability to rotate around the room (panning)
- voiceovers

interactive map

Any **two** from:
- how to get to hotel from some starting point on the map
- use of satellite photos and map superimposed
- zoom in/zoom out
- move north, south, east and west
- use of "pin head" to show location of hotel
- hotspots with information on that area
- how to get from one part of the hotel to another

room booking online

Any **two** from:
- calendar function// room availability for given dates
- type of room
- number of guests
- price per room
- hotel facilities e.g. breakfast/full board/half board
- special requirements
- special offers
- payment [6]

(b) Any **one** from:
- safe credit card payment facility
- hyperlinks to other web pages/websites
- local weather forecast [1]

8 **(a)** = (D2 * B2) + (E2 * C2)

1 mark 1 mark [2]

(b) = B2 * 4 [1]

(c) Any **two** from:
- use (=) IF(F2 > G2, "exceeded", "within range")
- replicate formula down to row 7

OR
- F2-G2
- if result is positive …

OR
- draw graph of data in columns F and G
- compare values on graph to determine if exceeded

OR
- drawing line of unit gradient (on a scatter graph of total cost versus maximum allowance)
- compare values on graph to determine if exceeded [2]

(d) Any **one** from:
- automatic calculation
- no need to create formula (etc.) every time on the spreadsheet
- can be assigned to a keyboard shortcut and launched [1]

9 **(a)** Any **one** from:
- infra red sensor
- pressure sensor/induction loop
- radar [1]

(b)
- time of day
- date [2]

(c) 1 mark for name + 1 mark for correct application
- barcode e.g. – stock taking in supermarket
  - getting prices at POS
  - library system
  - tracking systems (e.g. parcels)
- RFID e.g. – identifying/tracking individual items (livestock, vehicles, people)
- biometrics e.g. – finger printing, face images, etc. as security systems
- magnetic stripe e.g. – security cards (e.g. hotel room keys)
  - credit/debit cards/ATMs/banking
  - loyalty cards
- OCR/OMR e.g. – scanning in documents/photos/exam papers
- microphones e.g. – interface (input) to a computer (used by disabled people) [4]

10 (a) Any one benefit and one drawback from:
benefit:
– can bank at any time 24/7
– save money on travelling
– save time not travelling to bank
– can bank from anywhere
– can do transactions/look after account

drawbacks:
– need computer equipment/internet
– fear of hacking , viruses, etc.
– lack of one to one with bank
– creation of "ghost towns"
– reduced socialising
– cause of redundancies
– possibility of mismanaging account
– lack of counter services (drawing out cash) [2]

(b) Any **one** from:
– stops hackers getting all of the PIN characters [1]

(c) (i) **51020**: value of c: 5
message: PIN OK (1 mark)

5120: value of c: 4
message: ERROR (1 mark) [2]

(ii) length check [1]

11 (a) (i) *what data is gathered*:
Any **one** from:
– pressure
– temperature
– humidity
– wind speed/direction
– historic data [1]

(ii) how data is gathered:
Any **one** from:
– sensors
– satellites
– airline pilots send in information
– meteorological/weather balloons/station [1]

(b) (i) Any **one** from:
– information from sensors/satellites sent to computer
– data compared to stored information
– which contains known weather patterns
– predictions made based on these comparisons
– expert system [1]

(ii) Any **one** from:
- produces weather maps showing isobars, etc.
- computer can show weather changes graphically/by animations [1]

12 (a) (i)

A	B	X	
0	0	0	} 1 mark
0	1	1	
1	0	1	} 1 mark
1	1	1	

[2]

(ii) OR gate [1]

(b)

A	B	C	X	
0	0	0	1	} 1 mark
0	0	1	0	
0	1	0	1	} 1 mark
0	1	1	1	
1	0	0	1	} 1 mark
1	0	1	0	
1	1	0	1	} 1 mark
1	1	1	1	

[4]

13 (a) Any **one** from:
- buffer
- RAM [1]

(b) – interrupt [1]

(c) Any **two** from:
- hardware problem (e.g. head crash on disk drive)
- software "glitch"
- viruses
- disconnected printer cable
- automatic update in progress
- too many applications open [2]

(d) Any **one** from:
- backup the document
- enable automatic saving of work
- manually save document every 10 minutes
- save before printing [1]

14 (a) 7 [1]

(b) Hg, Cs
(1) (1) Correct Answer Only [2]

(c) (**Atomic Number** > 50) AND (**State at room temp** = "solid")

< - - - - - 1 mark - - - - - > < - - - - - - - - - - - 1 mark - - - - - - - - - - - >

Or

(**State at room temp** = "solid") AND (**Atomic Number** > 50)

< - - - - - - - -1 mark - - - - - - - > < - - - - - - - - - -1 mark - - - - - - - - >

Must use exact spelling [2]

(d) Os, Fe, Ga, Ag, Cs, Hg, Br, O, Ar [2]

15 (a) key press:

2	3

represented by:

0	1	0	1	1	1

[2]

(b) drink chosen: hot water/41 [1]

(c) Any **one** from:
- incorrect number typed/keyed in
- not one of the accepted codes used
- code not recognised
- machine malfunction (e.g. no cups) [1]

(d) (i) – chicken soup/60 [1]

(ii)

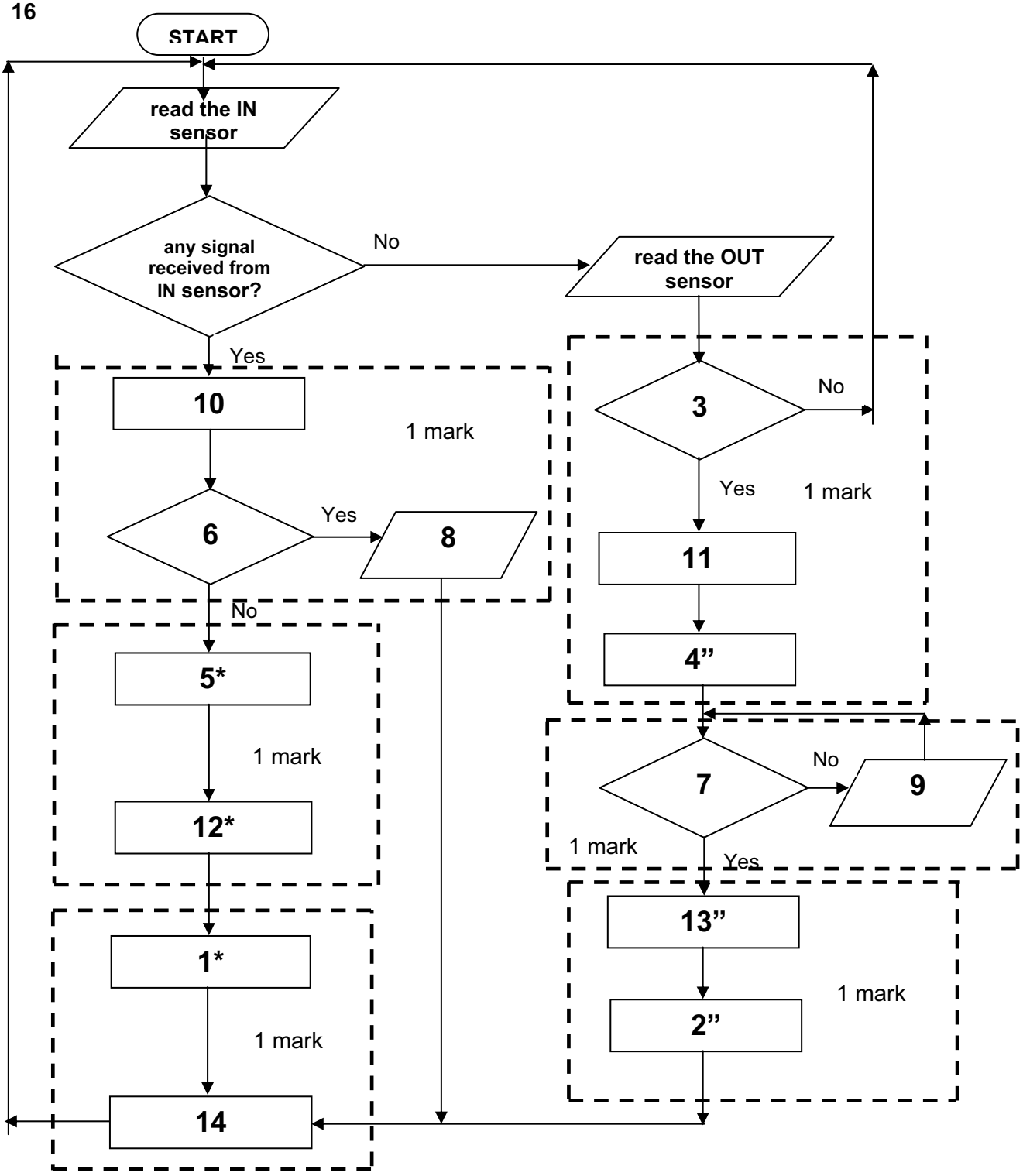
5			**2**		
1	0	1	0	1	0

1	1	0	1	0	0

[2]

(iii) – gives an additional row of options
– now have 0 to 77 instead of only 0 to 63 [1]

16



[6]

*Instead of 5, 12, 1 can have:
12, 1, 5
12, 5, 1

"instead of 4, , 13, 2 can have:
13, , 2, 4
13, , 4, 2

17 marking points

- Initialisation (smallest, largest, total) (could be first input)
- correct loop (also: **repeat** .... **until** n = 500, **while** n <> 500 **do** ....)
- input (inside a loop)
- calculate the density
- check on largest density + action taken
- check on smallest density + action taken
- find population total + calculate average population
- print values (outside loop + some evidence of processing taking place)

e.g.

```
smallest = 10000: largest = 0: total = 0                    (1 mark)
for country = 1 to 500                                      (1 mark)
    input population, area                                  (1 mark)
    density = population/area                               (1 mark)
    if density > largest then largest = density             (1 mark)
    if density < smallest then smallest = density           (1 mark)
    total = total + population
next country                                                (1 mark)
average = total/500
print largest, smallest, average                            (1 mark)   [6]
```