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

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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]

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(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
0	1	1
1	0	1
1	1	1

} 1 mark

} 1 mark

[2]

(ii) OR gate [1]

(b)

A	B	C	X
0	0	0	1
0	0	1	0
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	0
1	1	0	1
1	1	1	1

} 1 mark

} 1 mark

} 1 mark

} 1 mark

[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

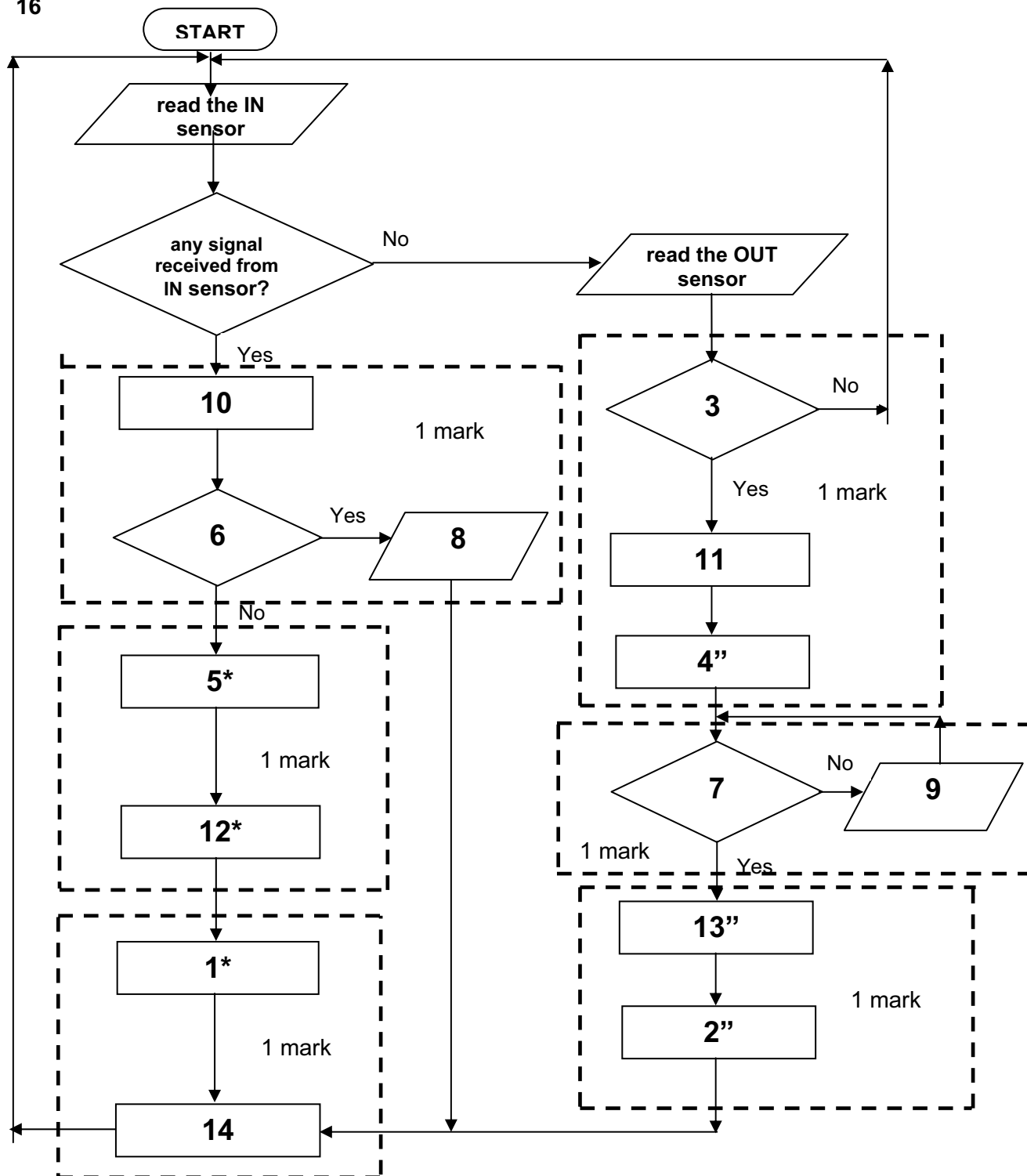| 1	1	0	1	0	0

             [2]

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

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16

START

read the IN sensor

any signal received from IN sensor?

No → read the OUT sensor

Yes

10

1 mark

6 → Yes → 8

No

5*

1 mark

12*

1*

1 mark

14

3 → No

Yes

1 mark

11

4"

7 → No → 9

1 mark

Yes

13"

2"

1 mark

[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

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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]