

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge Ordinary Level

MARK SCHEME for the October/November 2014 series

7010 COMPUTER STUDIES

7010/13

Paper 1, maximum raw mark 100

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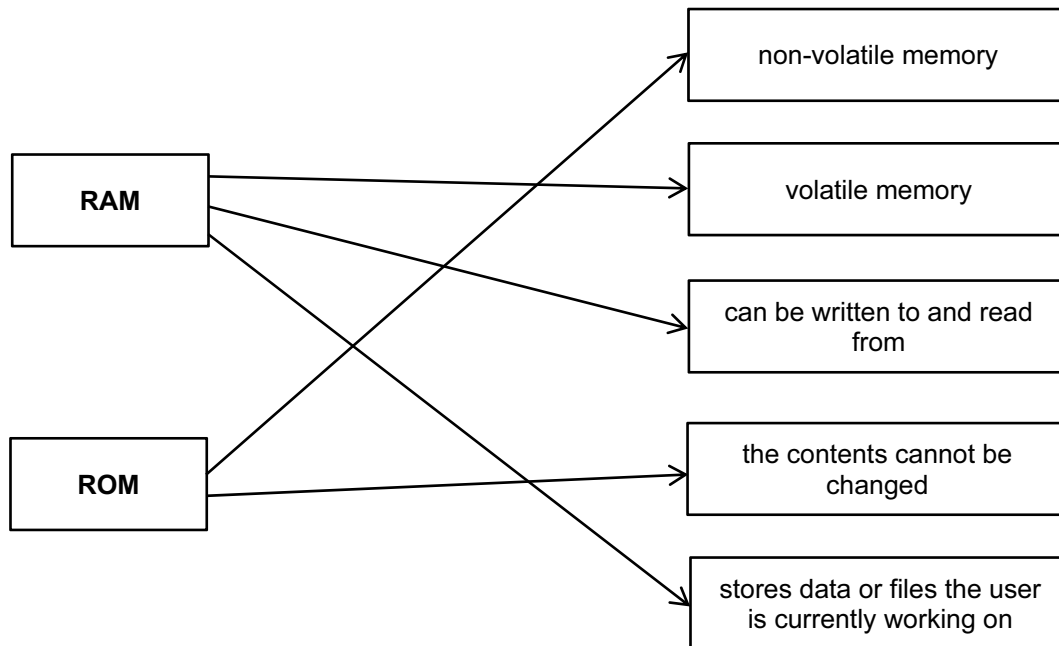
1 Any **three** from (need risk + reason):

Safety issues e.g.:

- electrocution from bare wires or spilling liquids on live equipment
- trip hazard due to trailing wires
- risk of heavy equipment falling from inadequate desks
- risk of fire if insufficient equipment ventilation or overloaded wall sockets

[3]

2



1 mark for each correct line (**max 5**)
Deduct 1 mark for each additional incorrect line.

[5]

3 (a) **FALSE** – encryption only stops data being read / making sense (but does not prevent the act of hacking)

FALSE – data when backed up could still have the virus attached to it
– when the backed up data is re-loaded at a later date, the virus could be loaded again into the system together with the stored data

TRUE – tapping into a Wi-Fi network is relatively easy (even when the network is protected by passwords)

1 mark for each correct TRUE / FALSE with correct corresponding reason

[3]

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(b) (i) drop down boxes help defeat spyware / key logging software [1]

(ii) – to ensure that it was in fact Felipe who logged on last time [1]
– an additional authentication check

(iii) in case it is not Felipe who attempts to access the account [1]

4 (a) Any **three** from:

- Expert System asks questions
- Rikki inputs the answers to the questions
- next question asked is based on previous response(s)
- search Knowledge Base
- uses the Rules Base to draw conclusions
- use of Inference Engine
- probable faults / solutions output on a screen
- ... and the % probability of accuracy is also given

[3]

(b) Any **two** from:

- security purposes as these files are needed to access the Expert System
- licence agreement to only allow an authorised number of computers to access Expert System
- the extra files need to be accessed for the Expert System to work

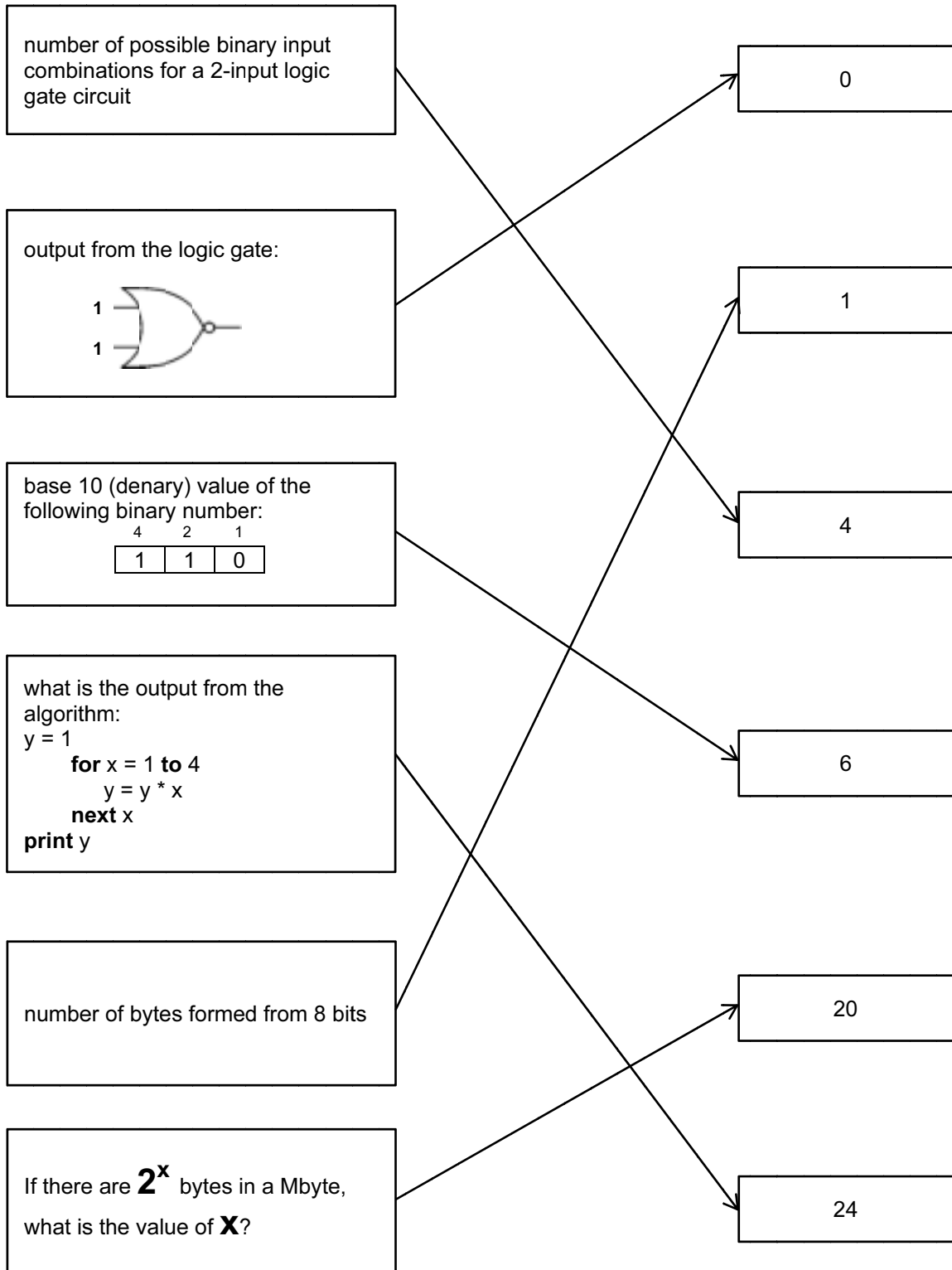
[2]

(c) Any **one** from:

- chess games
- oil / mineral prospecting
- tax calculations
- weather forecasting
- identify plants / animals/chemical compounds
- careers guidance
- car engine tuning

[1]

5



1 mark for each correct line (max 5)

[5]

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6 1 mark for each error located with corresponding correction (description or corrected pseudocode acceptable)

error: line 10: sum not initialised
correction: sum = 0

error: line 40: incorrect formula for sum
correction: sum = sum + n

error: line 50: incorrect IF statement
correction: IF sum > 50 THEN

error: lines 50 and 60: value of count causes a problem e.g. loop never ending
correction: **either** count = 19 on line 50
or count = count + 1 between lines 30 and 40
or any other correct solution

error: line 80: output of n is incorrect
correction **output** sum or **print** sum

[5]

7 (a) wikis

[1]

(b) social networking sites

[1]

(c) podcasts

[1]

(d) tagging

[1]

(e) blogs

[1]

8 (a)

d	u	u	l	a	f	x
---	---	---	---	---	---	---

n	a	c	c
---	---	---	---

x	e
---	---

o	y	u	o	v	.
---	---	---	---	---	---

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

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

[2]

(b)

c	o	m	p	u	t	i	n	g
---	---	---	---	---	---	---	---	---

i	s
---	---

f	u	n	.
---	---	---	---

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

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

[2]

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(c) Any **three** from:

- customers need a password / PIN
- use of card readers / use of Transaction Authentication Number (TAN)
- only certain characters from password / PIN requested...
- ...the requested characters change each time user logs on
- card security code requested
- use of drop down boxes
- use of a customer reference number
- inform customer when they last logged on to the website
- use of image verification code e.g. CAPTCHA
- make reference to something unique to the customer e.g. their mobile phone number
- use of secure protocol e.g. https, padlock symbol

[3]

9 (a) 1 mark for input device + 1 mark for its matching use

input device: touch screen
use: select film / cinema seats / price

input device: keyboard / keypad
use: input number of tickets / card PIN

input device: magnetic stripe reader / chip and PIN reader / card reader
use: reading credit / debit card details

input device: scanner
use: to read any promotional vouchers (etc.)

[4]

(b) 1 mark for each different output device + 1 mark for its matching use

output device: screen / monitor
use: show films available / seating plan / prices of each seat / payment details

output device: printer
use: print receipt / tickets

output device: loudspeaker / beeper
use: to indicate error in input / confirmation of keys pressed

[4]

10 (a) 1 mark for each different sensor (**max 2**)

- pressure sensor
- example of sensor to detect if door closed / open e.g. magnetic field sensor, proximity sensor
- moisture / humidity sensor
- temperature / infrared sensor

[2]

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(b) 1 mark for each item of data (**max 2**):

- is the food frozen / uncooked / cooked?
- cooking time
- start / end time
- power
- weight
- type of food
- additional cooking feature e.g. browning

1 mark for each corresponding input method (**max 2**):

- turn dial to select option
- touch screen / buttons / concept keyboard / keypad to select options
- use of barcode readers (to read barcodes on food packaging which stores an automatic cooking programme)

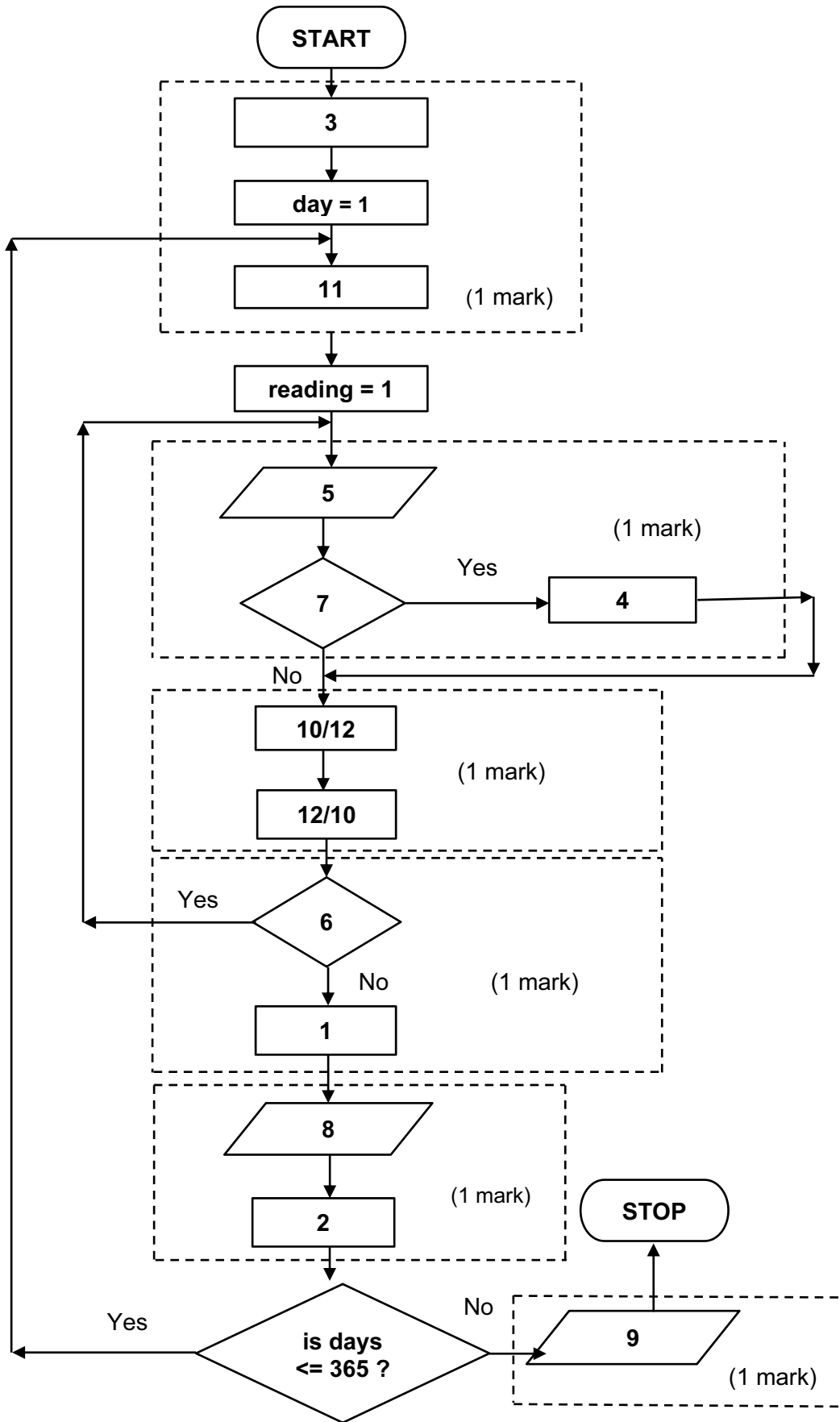
[4]

(c) Any **four** from:

- (microprocessor) checks / receives readings / data / signals from sensors....
-continuously
- if door open, (microprocessor) sends signal to sound alarm / stop process
- (microprocessor) compares weight of food against stored values...
- ...and automatically sets cooking time / power
- cooking time controlled by (microprocessor) comparing with stored values
- (microprocessor) sends signal to beeper / notify when cooking program complete

[4]

11



[6]

1

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12 (a) (i) B3 / B2 (1 mark)

(ii) $(B5 / C4) * 2$ or $= ((B5 * B2) / B3) * 2$ (1 mark)

[2]

(b) = IF(C6>D1, "above", "equal or below")

↔ ↔

1 mark 1 mark

OR

= IF(D1<C6, "above", "equal or below")

↔ ↔

1 mark 1 mark

Alternative word(s) for "above" are acceptable.

[2]

(c) C4, C6, D6

[1]

13 (a)

T1	T2	T3	A	B	C	OUTPUT
0	0	0				
			3	2	1	
1						
	1		4	8	7	
2			6	0	3	
		1	5	6	9	
	2		4	11	3	
			0	0	0	
						2, 2, 1

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

If no marks are awarded for the columns then 1 mark can be given for correct initialisation of T1, T2 & T3 as shown in the first row above.

[5]

- (b) – any data set (except 0, 0, 0) where 2/3 of the numbers are the same e.g. 2, 8, 8
 – flowchart does not allow for numbers which have the same value

[2]

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14 (a) Row number: 1 2 3 4 5 6 7

Reg 1:	0	1	1	0	0	0	0
Reg 2:	1	0	0	1	0	0	1
Reg 3:	1	0	0	1	0	1	0
Reg 4:	1	0	0	1	1	0	0
Reg 5:	0	1	1	0	0	0	0

Reg 1 + Reg 5 = 1 mark

Reg 2 = 1 mark

Reg 3 = 1 mark

Reg 4 = 1 mark

[4]

(b)

	8
Reg 1:	0
Reg 2:	0
Reg 3:	1
Reg 4:	1
Reg 5:	0

Reg 2 + Reg 5 = 1 mark

Reg 3 = 1 mark

Reg 4 = 1 mark

[3]

15 (a)

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

1 mark

1 mark

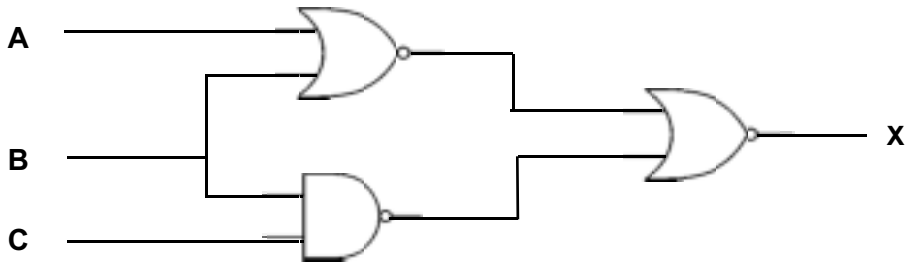
1 mark

1 mark

[4]

[4]

(b) 1 mark for correct NOR gate and 1 mark for correct NAND gate in correct positions on left hand side of diagram.



[2]

(c) [A = NOT 1 OR B = NOT 1] 1 mark
AND 1 mark
[B = 1 AND C = NOT 1] 1 mark

Other notations which are acceptable:

(NOT A OR NOT B) AND (B AND NOT C)

$(\bar{A} + \bar{B}) \cdot (B \cdot \bar{C})$

$(A' + B') \cdot (B \cdot C')$

[3]

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16 Marking points:

- initialise largest and two totals
- control loop for 1000 items
- check if price 1 > price 2 and increment total 1 (inside loop)
- check if price 2 > price 1 and increment total 2 (inside loop)
- calculate price difference (inside loop)
- method of dealing with negative difference
- check if calculated difference > largest difference and action taken if it is
- three outputs OUTSIDE a loop (calculation must have been attempted)

Sample program in pseudocode:

```

largest = 0
smarket1 = 0: smarket2 = 0           1 mark
for item = 1 to 1000                1 mark
    input price1, price2
    if price1 > price2 then smarket1 = smarket1 + 1    1 mark
    if price2 > price1 then smarket2 = smarket2 + 1    1 mark
    difference = price1 – price2                1 mark
    if difference < 0 then difference = - difference    1 mark
    if difference > largest then largest = difference    1 mark
next item
output smarket1, smarket2, largest           1 mark

```

(max 6)

[6]