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#### UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE O-Level

# MARK SCHEME for the June 2004 question papers

# **7010 COMPUTER STUDIES**

7010/01

Paper 1, maximum raw mark 100

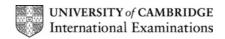
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All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

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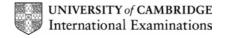
# INTERNATIONAL GCSE

# MARKING SCHEME

**MAXIMUM MARK: 100** 

SYLLABUS/COMPONENT: 7010/01

COMPUTER STUDIES
Paper 1



Page 1	Mark Scheme	Syllabus	Paper
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1 Generally, **one** mark for each valid point. Two examples gain two marks.

#### (a) byte

fixed number of bits, 8 bits represents a character

e.g.

a hex example

or

1	1	0	1	0	0	0	1

[2]

# (b) compiler

program

converts/changes/translates high-level language into machine code/machine language/low level language/object code

changes each high-level language instruction into machine code instructions produces independent program capable of being executed by itself all (syntax errors) listed

converts whole program before execution/in one go converts source code to object code

[2]

# (c) handshaking

exchanging of signals to establish communication between two devices/computers

e.g. printer and computer, modem and computer

[2]

#### (d) technical documentation

documentation to ensure that the system can be maintained/updated/altered/ developed/upgraded

trouble shooting/correcting errors/correcting faults

explanation of what the program does/how the system works

contains file structures

algorithms/flow charts/pseudo code

program listings hierarchical charts

[2]

#### (e) simulation

studying the behavior of a system

by using a model/represents real-life/mathematical representation e.g. flight simulator (or others), hazardous applications

results can be predicted

[2]

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## 2 (a) Any one method of transmission AND device

# method of transmission e.g.

blue tooth radio
optical satellite
infra-red microwave

#### device e.g.

3G (WAP) mobile phones/mobile phones/cell phone/remote key pad/remote control/keyboard

infra-red mouse

multimedia mobile handsets/notebooks

GPRS (general packet radio service) mobiles

WLAN(or WiFi) hotspots sited in public areas - e.g. coffee shops, railway stations, airports, motorway services

linked printers

PDA's (personal digital assistants)

GPS [1]

# **(b)** Any **one** advantage (advantage need not be linked to **(a)**) e.g.

no wires

fast/high speed wireless Internet access

WLAN is faster than a modem or mobile

WLAN for working at home one day a week/teleworkers

see internet content away on the move

create and send multimedia messages to mobiles or e-mail

picture messaging - send photos/pictures text/sound/recorded

greetings from mobiles to mobiles/PCs

instant transmission - no busy signals/no searching for phone jacks

download e-mail and file attachments on mobile

watch live web cast on mobile/hotspot

listen to streaming video on mobile/hotspot

news/weather/sport/games while on the move

access information from mobile anvtime

send/receive/delete e-mail while on the move

wireless Inbox on mobile - to contacts and calendar

view business appointments while out of office on mobile

send corporate e-mail while out of office - even behind a firewall on mobile

wireless internet connection from chat rooms for discussions with

colleagues while on the move

give visual demonstrations from mobile and colleagues watch back at

the office

# Any one disadvantage e.g.

WLAN speeds are slower than Net access at work/narrow band width any one within the WLAN nodes range with an appropriate device can use your WLAN and broad band link

any one who walks past your house or WLAN linked into a corporate system can access sensitive information or credit card details

3G phones not compatible with 2G phones

Blue tooth - has limited range

blocked signal/distorted signal/weak signal/lag

health problems from microwaves

[2]

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# 3 (a) Two PLACES from e.g.

car factories/factories chemical/nuclear factories production lines warehouses deep in the ocean/down mines on other planets/in space road junctions

[2]

# (b) Two from

reduced labour costs/do not need paying reduced cost of goods improve speed of production/productivity high degree of accuracy/precision/less errors can operate where humans can not go do not take breaks/holidays/get tired work 24 hrs a day reduce accidents at traffic lights improve traffic flow can work in dangerous conditions

[2]

[2]

#### 4 (a) Any two from e.g.

memory used up/slows down computer/alters setting/systems failure erases files/erases data/corrupts data/data needs restoring infects other computers on network production loss/financial loss [2]

#### (b) Any two from

do not allow outside floppy disks/CD's/DVD's use disk free work stations download/install and use anti virus software scan hard disks regularly update the anti virus program regularly do not open file attachments from unknown sources/download doubtful software from the Internet do not use files that come from unknown sources buy original software/do not buy pirated software use firewalls

# 5 Any **three** points from e.g.

novice can use the system right away user-friendly/easy to select click on icons/picture to select easier to input/words are replaced with icons no need to know command language to use the system/remember command language selecting item using mouse is faster than entering commands avoids typing errors no need to type no need to remember commands no need know the different commands for the different software multitasking (several programs open at the same time therefore easier /faster to switch easier/faster switching between files, folders etc. [3]

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# 6 (a) One item from e.g.

camera microwave
washing machine video recorder
fridge sewing machine
air conditioning games console
electronic game electronic toys
rice cooker dish washer
TV alarm clock

radio [1]

#### (b) Award one mark for each task controlled e.g.

camera film speed, position (end of film), distance, light amount of water, speed of wash/temperature/time temperature, display panel

air conditioning temperature, timing, display panel [2]

#### 7 One mark each section.

F4

L90/R270

F4

L90/R270

F2

L90/R270

F2 one mark

R90/L270

F2 one mark

L90/R270

F2

(any L/R, B1, B2) one mark [3]

## 8 (a) One from

text editor/web editor
HTML (editor)
word processing
desktop publishing software
web publishing software/web developing software/authoring
presentation software

(b) Two from

changing the background colour or background image on a page formatting text (size, font, colour, bold, italic, underline etc.)/frames working with tables

inserting graphics/pictures/sound clip/video clip/animations working with links/creating buttons/list box switching to a browser to check the appearance of a page

use templates use auto tags

[2]

[1]

(c) on a server

stored on ISP/web host (server)

[1]

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# 9 (a) Any two from e.g.

check digit product number/item number/code country of origin manufacturers number/code weight price

[2]

# (b) Any two points from

check digit calculation is performed on the check digit remainder = 0 if barcode has been read correctly weights and modulus 11 and use remainder or subtractions and addition and use answer

[2]

# (c) random/direct/online

[1]

# (d) Two from e.g.

search file/master file
using barcode number/product code
and decrease number in stock/increase quantity sold

[2]

# (e) Any two from e.g.

more accurate/improved stock control/recording system/automatic reordering/automatic updating of stock file

less staff/wages needed

sales statistics now available

faster throughput itemised receipt

records every transaction records staff work rates

less pilfering by staff/easier to identify pilfering

less errors

faster calculations

links to EFTPOS

[2]

## 10 (a) Any four points from

specify output requirements

design documents/screen displays

data for input/storage

form design

storage devices

file structures/access/design

data security/back up files

systems flowchart etc.

implementation i.e. pilot/intermediate/parallel running

testing strategy

training

hardware/software

programming/algorithms

validation

user manual

technical documentation

entering data into system

[4]

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# (b) Two points from

user changes his mind new government legalisation/company policy company changes changes in hardware changes in software/upgrades/new versions improved operating efficiency/ease of use

# 11 (a) Award one mark from each section

#### Hard disk drive

to hold the operating system/communication and applications software/ISP software for storing files/information/cookies on backing store

#### **RAM**

for data, computer programs and operating instructions which are moved into it/downloaded for data currently in use

#### **DVD** writer

Films/videos/pictures/music/multimedia data downloaded/purchased

## **Modem**

link/dial up/establish communication with the Internet Convert digital signals to analogue/audio tones (and vice versa) Which can travel across the telephone system

[4]

[2]

## (b) Award one mark for each

for logging on - dial up/communications software/ISP

software

for searching - browser/search engine [2]

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# (c) Award one mark for an advantage

on-line catalogues can be viewed much larger choice of products product reviews obtainable before purchase orders placed over internet any time day or night download software purchased straight away good and services usually cheaper on the internet programs that can search for best price/cheapest very fast placing an order has been placed as customer name, address and credit card details are stored so no need to re enter buy goods from anywhere in the world no need to go to shop/save travelling time

#### Award one mark for a disadvantage

#### spam

need a credit card to shop on-line/not everyone has a credit card hackers could retrieve credit card numbers and use them to buy goods security fears - of giving credit card number over the internet/fraud goods must be delivered/can not have the goods immediately can not touch/handle/see the goods [2]

#### (d) Award one mark for each

loss of jobs as some traditional shops/banks close lower profits for companies that do not get involved with e-commerce decline of leisure shopping as goods are bought on-line city centres becoming deserted as shops/banks close down gap between rich and poor widening as richer get savings from shopping on-line more people choosing to interact with computers rather than people increase in small businesses less pollution/travelling [2]

#### **12** (a) ONLY

general/text/alphabetic/alphanumeric/string/centred/bold/text-wrapped/sans-serif [1]

#### (b) Allow brackets

\$B\$3\*B7 + \$B\$4\*C7 or B3\*B7 + B4\*C7 or B7\*3 + C7\*2 1 mark 1 mark

[2]

#### (c) Award one mark per stage

select/highlight/click on D7 description of copy and paste/replicate into cells D8, D9, and D10/fill down/drag and drop [2]

(d) =IF(D10 > E10, Profit, Loss) [1]

#### (e) A6:A10 and D6:E10 or

A7:A10 and D7:E10 1 mark 1 mark

or individual cells listed e.g. A7, A8, A9, A10 and D7, D8....E10 [2]

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# 13 (a) Any two from

Better/improved traffic flow control reduces accidents keeps delays to a minimum reduces pollution cars use less fuel

[2]

# (b) Award one mark each

## input

from sensors from camera images

[Max 2]

#### processing

analyse data from sensors calculate average traffic flow/speed send signals to adjust change lights/timing

[Max 3]

# <u>output</u>

change lights at junction change timing plan

[Max 2]

[5]

[1]

## (c) Award one mark

give uninterrupted path through the system of linked traffic lights/ green link - wave turn all lights to red activate emergency generator alarm

Pa	ige 9	Mark Scheme	Syllabus	Pa
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14	(a) A	Any <b>one</b> point from e.g.		
		star - if one computer goes down the others can still be ring - if one computer goes down the others can not be		[1]
	(b) (	On diagram drawn and labelled		
		correct network one mark		
		Any <b>two</b> from award <b>one</b> mark each		
		server printer modem/bridge/gateway		[3]
	(c) A	Any <b>two</b> from		
		share database (from one source)/access same inform access to database by staff from any LAN machine only one database to backup	ation	[2]
	(d) A	Any <b>two</b> from		
		data must be accurate/up-to-date personal data must be registered data must be used for the purpose that is registered for if data is to be used for another purpose the registrar must gives consent patients must able to see the data and have it changed processed fairly and lawfully	ust be not	

kept no longer than needed kept secure not transferred to other countries without protection

(e) Any one way of saving - award one mark

backups/dumps of files copy of files on CD/tape streamer file generations

Any **one** from - award **one** mark

mirrored hard disk/hot stand by/second computer re-run the old master file with the transaction file [2]

[2]

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## 15 (a) Award one mark each

(i) 33.8 [1] (ii) 41 [1]

[5]

(b) Award one mark for each correct step in the algorithm

```
Initialise
Loop
Input temperature (x24)
Convert to Fahrenheit
Find maximum and minimum
Calculate average (outside loop)
Output maximum, minimum, average
```

# Examples of correct answers are:

```
(i) sum = 0
min = 100
max = 0
count = 1
while count <= 24 do
input temp
F = (temp*1.8) + 32
sum = sum + F
if F < min then min = F
if F > max then max = F
count = count + 1
endwhile
average = sum/24
print average, min, max
```

```
(ii) sum = 0
min = 100
max = 0
count = 1
repeat
input temp
F = (temp*1.8) + 32
sum = sum + F
if F < min then min = F
if F > max then max = F
count = count + 1
until count > 24
average = sum/24
print average, min, max
```

Pa	ige 11	Mark Scheme	Syllabus	Paper
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16	(a)	6		[1]
	(b)	text/alphanumeric/string		[1]
	(c)	Award <b>one</b> mark per point		
		less errors on input requires less storage space validation quicker to input quicker to find		[2]
	(d)	One mark each		
		M1057, M1124		[2]
	(e)	One mark each stage		
		highlight/select SURNAME field click on sort A to Z icon/in menu		
		or query, click on (sort) ascending		[2]