GAUTENG DEPARTMENT OF EDUCATION

SENIOR CERTIFICATE EXAMINATION

COMPUTER STUDIES SG
(Second Paper: Theory)

POSSIBLE ANSWERS OCT / NOV 2006

QUESTION 1
BINARY LOGIC

1.1   ac' + a(b + c')
            = 1.1' + 1(0 + 1') ü
            = 1.0 + 1(0 + 0) ü
            = 0 + 0 ü
            = 0 ü (no part marks)   (4)

1.2   G   (2)

1.3.1   Kia
1.3.2   Hyundai, Opel, Kia, Isuzu   (4)

                                                           [10]

QUESTION 2
COMPUTER ARCHITECTURE

2.1.1   C
2.1.2   A
2.1.3   A
2.1.4   D
2.1.5   A
2.1.6   B
                                                           (6)

2.2.1   two of: memory stick, stiffy, CD, DVD, zip drive removable hard drive   (2)
2.2.2   80 GB   (1)

2.3   2.4 GHz   (1)

2.4 A, E, F
    (CU, ALU, registers)   (3)

2.5.1 technique where CPU is treated as if it were two parallel processors
                  (2)

2.5.2 any two of:
    pipelining
    improving number of bits that can be handled simultaneously
    use of cache memory
    improve techniques used to manufacture CPU chips
    increase speed of processor
    make changes in basic instruction set   (2)

2.6.1 data bus, system bus, control bus   (3)
2.6.2 PCI express   (1)

2.7.1 Universal Serial Bus   (1)
2.7.2 any two of:
    supports Plug and Play
    hot swoppable
    can daisy chain up to 127 devices   (2)

2.8.1 D
2.8.2 A
2.8.3 B
2.8.4 C   (4)

2.9 RAM, processor   (2)

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QUESTION 3
SYSTEM SOFTWARE

3.1.1   any two of:
- § programs used when the computer is started up
- § utilities
- § web browsers
- § database programs
- § programming languages

(2)

Note: marks are allocated for any type of program, or the name of such a program

3.1.2   any two of:
- § can be downloaded free of charge
- § open source software
- § has several GUI interfaces
- § more stable network system
- § immune to viruses

(2)

3.2.1   C
3.2.2   A
3.2.3   B   (3)

3.3.1   D
3.3.2   E
3.3.3   A
3.3.4   B
3.3.5   C

(5)

3.4   The time measured from the moment an instruction is given to the computer ü until the results of this instruction are visible ü
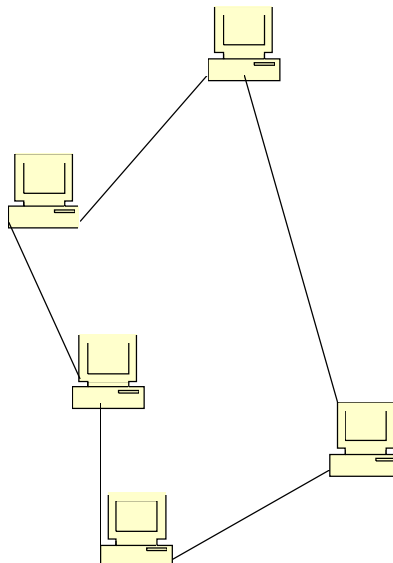
(2)

3.5.1   kernel
3.5.2   spooler   (2)

3.6 any three of:
control access to files on server through rights and permissions
control a database of users
control sharing of files and printers
control sending and receiving of mail on the local network
manage caching of web pages
provide a firewall as protection to the server (3)

3.7 any two of:
empty Recycle Bin
delete temporary files
run Defrag
update anti-virus program
… add more (2)

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QUESTION 4
DATA COMMUNICATION

4.1.1 a network in which one computer ü (the server) has control over the other
computers in the network ü (the clients) (2)
4.1.2 (a) peer-to-peer network (1)
(b) all computers have equal status (1)

4.1.3 the network administrator (1)

4.2.1 sketch must show a ring topology (2)

4.2.2 ring topology (1)
4.2.3 yes (1)
4.2.4 router (1)

4.2.5	gateway	(1)
4.2.6	Rules and regulations ü which govern communication over a network ü	
		(2)
4.2.7	TCP/IP	(1)

4.3.1	B	
4.3.2	C	
4.3.3	A	
4.3.4	C	(4)

4.4.1	serial transmission	
4.4.2	parallel transmission	
4.4.3	full duplex transmission	(3)

4.5.1	token passing	(1)
4.5.2	CSMA/CD	(1)

4.6   explanation must include at least four of the following facts:
- § messages are broken up into packets
- § these packets have a fixed length
- § data is sent during short, dedicated connections
- § each packet contains sender and receiver information
- § messages are reassembled at the receiving end

(4)

4.7.1   the total number of bits that can be sent along a communication medium, in a certain time period   (2)

4.7.2   one should weigh up the fixed cost per month, against the total time that one would actually use the line for Internet access   (2)

4.8   any three of:
light, radio, satellite, microwave   (3)

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QUESTION 5
INTERNET AND NEW TECHNOLOGY

5.1   any two of the following:
§   Internet Explorer
§   Netscape Navigator
§   Opera
§   Mozilla
§   Firefox

                                                                                            (2)

5.2   Internet Service Provider (accept just "ISP")   (1)

5.3.1   91.1 KB   (1)
5.3.2 a)   Y   (1)
5.3.2.b)   Z   (1)
5.3.3   4 persons   (1)
5.3.4   ananzi   (1)

5.4.1   http://www.quickweb.co.za   (1)
5.4.2   storing someone else's website on one's own computer, which is
           permanently connected to the Internet, so that that website is permanently
           visible on the Internet   (2)

5.5.1   a cookie is a file that is stored on the user's computer by the web browser,
           while the user is connected to the Internet (e.g. when logging on to a web
           site)   (2)
5.5.2   An Internet site where persons log on and exchange ideas around a
           common topic   (2)

5.5.3   data that is sent via the Secure Sockets Layer is encrypted to make the
           transfer of data secure   (2)

5.6   a protocol which makes it possible to exchange voice communication over
           the Internet   (2)

                                                                                    [19]

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QUESTION 6
SOCIAL IMPLICATIONS

6.1   any three of the following:
- §   viruses are spread via networks
- §   hackers can obtain information from our computers
- §   Internet companies can plant spyware on one's computer
- §   use of sniffer programs to detect names and passwords
- §   .. add more   (3)

6.2.1   the document has been "translated" into unreadable "words" ü by means of a special code ü   (2)

6.2.2   save it with a password

                                                             (1)

6.3.1   any two of:
tutorials
drill and practice programs
educational games
simulation (science experiments, geographical phenomena, etc)
                                                           (2)

6.3.2   any two of:
a learner using a computer program can work at his/her own pace
some simulations provide better examples for the classroom than any
 hand sketch or textbook can provide
the learner can go back and repeat a learning activity as many times as
 he/she likes
… add more   (2)

6.4.1   one of the following definitions:
- §   a credit card sized card which stores information electronically
- §   a credit card sized card which has a microchip built into it

                                                         (2)

6.4.2   any two of:
- §   SIMM card
- §   e-tag to pay at toll gates
- §   taxilink card to pay for taxi rides

… add more   (2)

6.5.1   this can result in one receiving a lot of spam from companies that
         obtained one's e-mail address   (1)
6.5.2   any two of the following:
              §   a wider range of goods is available on Internet sites
              §   shopping can be done from the comfort of one's home
              §   one is not limited to shopping in business hours
         … add more   (2)

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QUESTION 7
APPLICATIONS AND PACKAGES

7.1   three of:
         spreadsheet, database, presentations program, e-mail program
                                                                    (3)

7.2   software which may be used free of charge for an unlimited period
                                                                    (1)
7.3   software which one can use for a trial period, after which one is requested
         to pay something to the author of the software   (1)

7.4.1   creating graphics and animations   (1)
7.4.2   accounting   (1)
7.4.3   creating web pages   (1)

7.5   any one of:
              §   Winzip
              §   Zipcentral
              §   WinRAR   (1)
7.6.1   =average(C2:E2)   (2)
7.6.2   Yes   (1)
7.6.3   No   (1)
7.6.4   B   (2)

7.7.1   Like "M*"   (2)
7.7.2   a) Account   (1)
         b) 50   (1)

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TOTAL: 150