

**GAUTENG DEPARTMENT OF EDUCATION  
SENIOR CERTIFICATE EXAMINATION**

**COMPUTER STUDIES SG  
(Second Paper: Theory)**

**Possible Answers / Moontlike Antwoorde  
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**QUESTION 1  
BINARY LOGIC**

- 1.1  $A.A' + (B + B')$   
 $= 1 + 0$   
 $= 1$  (3)
- 1.2  $F(x, y, z) = x'y + (y + z)'$   
 $= 1'.1 + (1 + 0)'$   
 $= 0.0 + 0'$   
 $= 0 + 1$   
 $= 1$  (3)
- 1.3 1.3.1 A, C, D (2)
- 1.3.2 A, B, D, E, F (2)
- [10]**

**QUESTION 2  
COMPUTER ARCHITECTURE**

- 2.1 Any three of:  
 mouse, Flash memory stick, printer, scanner, monitor, modem, stiffy drive, hard drive, CD/DVD writer, digital camera (3)
- 2.2 B. (1)
- 2.3 2.3.1 **“Hot swappable”** means that a device can be plugged in while the computer is switched on. (1)
- 2.3.2 **“Plug and play”** means that when a new device is plugged in, the operating system will detect the device, and the necessary drivers will be installed without user intervention. (2)
- 2.4 Keyboard and mouse (2)
- 2.5 Printer (1)
- 2.6 Parallel port (1)
- 2.7 Digital video camera (1)

- 2.8 B (1)
- 2.9 2.9.1 FALSE
- 2.9.2 FALSE
- 2.9.3 TRUE (3)
- 2.10 2.10.1 The AGP transfers data  $\pm 8$  times as fast as a PCI bus OR AGP has direct memory (RAM) access. (1)
- 2.10.2 A processor and its own RAM (2)
- 2.11 2.11.1 The hard drive (1)
- 2.11.2 Any two of:  
can connect two devices  
cheaper than SCSI  
can connect CD-R, CD-RW (2)
- 2.12 2.12.1 C
- 2.12.2 D
- 2.12.3 A
- 2.12.4 B
- 2.12.5 C
- 2.12.6 B
- 2.12.7 D (7)
- 2.13 When the CPU is ready to execute the next instruction, it first looks in the cache memory, before looking in RAM for the next instruction. It is faster to transfer instructions from the cache memory, hence this speeds up the overall performance. (2)
- 2.14 Any two of:  
Pipelining  
Increasing the speed of processors  
Improvements in manufacturing of CPU chips  
Increasing the number of bits that can be processed simultaneously  
Changes in the basic instruction set (2)

**QUESTION 3**  
**SYSTEM SOFTWARE**

- 3.1 3.1.1 Any one of:  
Linspire  
Linux  
NT (1)
- 3.1.2 Any two of:  
Linspire  
Linux  
add others (2)
- 3.1.3 Palm OS  
Pocket PC (2)
- 3.1.4 Any one of:  
Windows 2000  
Windows XP  
NT (1)
- 3.2 Manages memory allocation  
Manages execution of processes  
Manages file I/O  
Manages device I/O (4)
- 3.3 Any two of:  
Date of the file  
Address of cluster on hard disk where the file starts  
File properties (such as read-only) (2)
- 3.4 3.4.1 BIOS (1)
- 3.4.2 checks whether keyboard, mouse, hard drives, etc, are working (1)
- 3.5 One of:  
Make sure the computer is virus-free when you install the program  
Update the anti-virus program regularly (1)
- 3.6 A driver provides the interface between a specific hardware device and the operating system (2)
- 3.7 Reorganizes files on clusters on the hard drive (2)
- [19]**

**QUESTION 4**  
**DATA COMMUNICATION**

- 4.1 Any three of:  
 Can share expensive devices  
 Can copy files over the network  
 Can store certain files on server so that these files can be accessed by many users  
 Can set security on certain files so that only some users will have access to those files (3)
- 4.2
- 4.2.1 Internet (1)
- 4.2.2
- |         |     |                           |
|---------|-----|---------------------------|
| Example | GAN | Global Area Network       |
| (a)     | MAN | Metropolitan Area Network |
| (b)     | WAN | Wide Area Network         |
- (4)
- 4.3 4.3.1 Coaxial, twisted pair and fibre optic cables (3)
- 4.3.2 Satellite microwave (also accept only "satellite") (1)
- 4.3.3 Bluetooth (1)
- 4.3.4 Any one of:  
 Must use within "line of sight"  
 Relatively immune to eavesdropping (1)
- 4.3.5 Any three of:  
 Install and update anti-virus software on computers  
 Add, edit, delete users  
 Control access rights to files on server  
 Make regular backups of files on server  
 ...add more (3)
- 4.4 Ethernet, FDDI, token ring (3)
- 4.5 Ethernet (1)
- 4.6 A workstation wishing to send a message listens for traffic on the network. If there is no traffic, the computer sends the message. P  
 The workstation listens to establish if there was a collision. P  
 If there was a collision, the workstation waits a random time before attempting to broadcast a message again. P (3)

- 4.7 One of:  
token passing  
polling (1)
- 4.8 4.8.1 TRUE  
4.8.2 FALSE  
4.8.3 TRUE (3)
- 4.9 One of:  
Can share expensive software on a central server  
Very good security control – can set rights and permissions on files  
Easier to control which users can log on to the network  
Can centralize the configuration and updating of anti-virus software  
Can load software onto all computers in the network by running one program on the server  
- all of which cannot be done on a peer to peer network (1)
- 4.10 Amplifies and regenerates the signal  
Chooses which computer the message must be sent to (2)
- 4.11 Any two of:  
Repeater  
Bridge  
Gateway (2)
- 4.12 Messages are broken up into fixed-length packets  
Packets are sent during short periods of dedicated connections (2)
- [35]**

### QUESTION 5 INTERNET

- 5.1 mweb (1)
- 5.2 Search engine (1)
- 5.3 Any two of:  
iafrica, tiscali, global, netactive, telkomsa  
... check for further correct options in candidates' answers (2)
- 5.4 5.4.1 Text which, when you click on it, loads another web page (1)  
5.4.2 Rules and regulations which govern how computers communicate in a network (2)
- 5.5 5.5.1 Refers to a company (1)  
5.5.2 Refers to a country / South Africa (1)

- 5.6 html (in full: Hypertext Markup Language) (*learners may give the acronym only*) (1)
- 5.7 Can reach a wider audience, so their market is bigger  
Can display a lot of items on the site, without actually displaying all of these items in their shop (saves space) (2)
- 5.8 Do not give out credit card details without first making sure that it is a trustworthy website (1)
- 5.9 Personal Digital Assistant  
or: a handheld computer where one can keep a diary, address list, etc. (1)
- 5.10 Any three of:  
Keep a diary  
Keep an address list  
Use a calculator  
Use as a text editor  
... add more (3)
- 5.11 Digital camera (1)
- [18]**

**QUESTION 6  
SOCIAL IMPLICATIONS**

- 6.1 Any two of:

| Job  | Reason   |
|--|--|
| Typist   | Many people in senior management type their own letters on word processors |
| Bank teller  | Fewer tellers needed because one can draw cash at the ATM                  |
| <b>Check candidate's answers for correct options</b> |  |

(4)

- 6.2 Any two of the following:

Hackers can obtain one's bank account details and passwords, and steal money  
Fake bank websites have been created, to fool a user into entering account details and passwords.

Banking scams exist where users are asked for their details via e-mail, with the sender pretending to be a bank official.

(2)

- 6.3 Any two of:  
 Poorer health due to lack of exercise (spending too many hours at the computer)  
 (Any of the following due to excessive computer use)  
 Backache  
 Eye strain  
 Neck strain  
 Carpal tunnel syndrome  
 Tennis elbow (2)
- 6.4 The software you install was really created by the stated company  
 The message you receive is actually from the person who claims to be sender (2)
- 6.5 Any two of:  
 Digital signature  
 Information needed to encode or decode the message  
 Expiry date (2)
- 6.6 **Spyware** is software which is installed on one's computer without one's knowledge, and which gathers information about the user's habits, to be sent back to the person/company that "planted" the software. (3)
- [15]

### QUESTION 7 APPLICATIONS AND PACKAGES

- 7.1 7.1.1 Any one of:  
 database  
 publishing program (Publisher)  
 e-mail program (Outlook) (1)
- 7.1.2 Spreadsheet (row 2): any one of: Quattro Pro, Lotus 1-2-3 or Calc  
 Accounting program (row 3): any two of: Pastel, Accpac, Quickbooks, Brilliant Accounting  
 Presentations (row 4): any two of: Impress, Powerpoint, Presentations (5)
- 7.1.3 Frontpage (1)
- 7.2 7.2.1 G  
 7.2.2 B or F  
 7.2.3 A  
 7.2.4 E  
 7.2.5 E  
 7.2.6 D (6)

7.3 Can make the font smaller  
Can make the margins smaller  
Decrease line spacing (any 2) (2)

7.4 B (Adobe Acrobat Reader) (1)

7.5 7.5.1 134.42

7.5.2 45.5

7.5.3 20

7.5.4 3 (4)  
[20]

**TOTAL: 150**