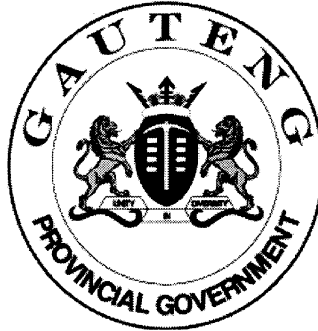


**SENIOR CERTIFICATE  
EXAMINATION  
*SENIORSERTIFIKAAT-EKSAMEN***



**FEBRUARY / MARCH  
*FEBRUARIE / MAART***

**2007**

**COMPUTER  
STUDIES  
*REKENAARSTUDIE***

**SG**

**Second Paper : Theory  
*Tweede Vraestel : Teorie***

**724-2/2**

COMPUTER STUDIES/REKENAARSTUDIE SG : P2/V2



724 2 2

SG

**16 pages  
*16 bladsye***



GAUTENGSE DEPARTEMENT VAN ONDERWYS  
SENIORSERTIFIKAAT- EKSAMENREKENAARSTUDIE SG  
(Tweede Vraestel: Teorie)

TYD: 3 uur

PUNTE: 150

**INSTRUKSIES:**

- Beantwoord AL die vrae.
- Hierdie vraestel bestaan uit 16 bladsye. Maak asseblief seker dat jou vraestel volledig is.

**VRAAG 1  
BINÊRE LOGIKA**

1.1 Vereenvoudig elk van die volgende Boole-uitdrukkings:

1.1.1  $X + 1 =$  (1)

1.1.2  $X.X' =$  (1)

1.2 Vereenvoudig elk van die volgende Boole-uitdrukkings en toon minstens TWEE stappe voor die finale antwoord. As jy slegs 'n 1 of 'n 0 neerskryf, sal geen punte toegeken word nie:

1.2.1  $(1.0)' . 1'$  (2)

1.2.2  $(0' + 0)'$  (2)

1.3 Die uitdrukkings in Vraag 1.3.1 en 1.3.2 gebruik die Boole-operateurs (NIE, EN, OF). Kies vir elke uitdrukking die korrekte beskrywing vanuit die onderstaande opsies. Skryf slegs die nommer van die vraag en die letter neer (byvoorbeeld: 1.3.3 D).

(Elke antwoord tel 2 punte, hoewel jy slegs EEN letter per vraag moet kies.)

1.3.1 Suid-Afrikaans OF Duits EN vroulik

- A. Alle Suid-Afrikaners, asook Duitse vroue  
B. Vroue wat Suid-Afrikaans of Duits is (2)

GAUTENG DEPARTMENT OF EDUCATION  
SENIOR CERTIFICATE EXAMINATION

COMPUTER STUDIES SG  
(Second Paper: Theory)

TIME: 3 hours

MARKS: 150

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**INSTRUCTIONS:**

- Answer ALL the questions.
  - This paper consists of 16 pages. Please check that your paper is complete.
- 
- 

**QUESTION 1**  
**BINARY LOGIC**

1.1 Simplify each of the following Boolean expressions:

1.1.1  $X + 1 =$  (1)

1.1.2  $X.X' =$  (1)

1.2 Simplify each of the following Boolean expressions, showing at least TWO steps before the final answer. If you write down only an 1 or 0, no marks will be allocated:

1.2.1  $(1.0)'.1'$  (2)

1.2.2  $(0' + 0)'$  (2)

1.3 The expressions in Questions 1.3.1 and 1.3.2 use the Boolean operators (NOT, AND, OR). For each expression, choose the correct description from the options below. Write down only the question number and the letter (for example: 1.3.3 D.)

(Each answer counts 2 marks, although you must choose only ONE letter per question.)

1.3.1 South African OR German AND female

- A. All South Africans, as well as German females  
B. Females who are South African or German (2)

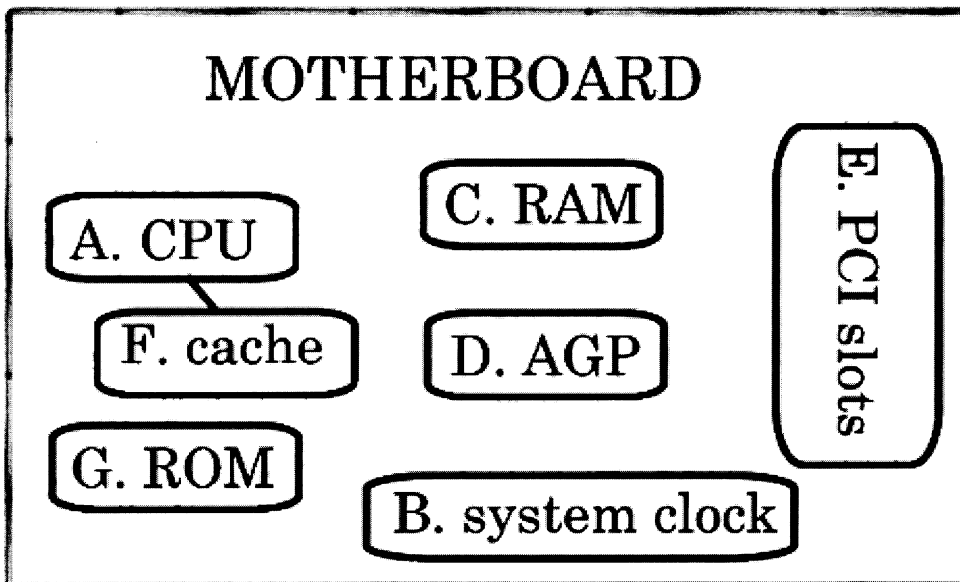
1.3.2 Duits EN NIE vroulik OF tiener

- A. Enige Duitsers, asook manlike tieners
- B. Enige tieners, asook manlike Duitsers
- C. Enige Duitser wat nie vroulik of 'n tiener is nie

(2)  
[10]

**VRAAG 2**  
**REKENAARARGITEKTUUR**

Die onderstaande diagram verteenwoordig sommige van die items wat op die moederbord van 'n rekenaar gevind word. Vraag 2.1 en 2.2 verwys na hierdie diagram.



**Vertalings**

motherboard  
= moederbord

system clock  
= stelselklok

PCI slots  
= PCI-gleuwe

cache = kas

CPU = SVE

ROM = LAG / LSG

RAM = ETG

2.1 Voltooi elk van die volgende sinne (2.1.1 - 2.1.9) deur die toepaslike letter wat op die diagram voorkom, neer te skryf (Byvoorbeeld: 2.1.10 H)

- 2.1.1 Komponent \_\_\_\_\_ het 'n ALU (Arithmetic Logic Unit/Rekenkundige Logiese Eenheid) en 'n CU (control unit/beheer-eenheid)
- 2.1.2 Komponent \_\_\_\_\_ kan die vorm van SDRAM of DDR RAM aanneem.
- 2.1.3 Komponent \_\_\_\_\_ is 'n vorm van SRAM (statiese RAM).
- 2.1.4 Komponent \_\_\_\_\_ is 'n vorm van dinamiese RAM.
- 2.1.5 Komponent \_\_\_\_\_ maak dit moontlik vir die rekenaar om grafika vinniger te vertoon.
- 2.1.6 Komponent \_\_\_\_\_ stoor die BIOS-programme.

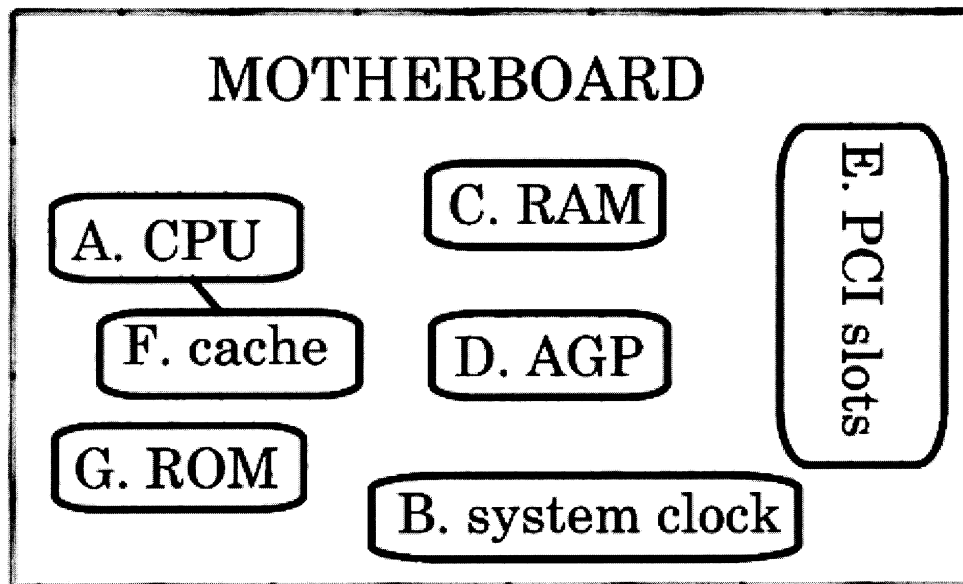
1.3.2 German AND NOT female OR teenager

- A. Any Germans, as well as male teenagers
- B. Any teenagers, as well as male Germans
- C. Any German who is not female or a teenager

(2)  
**[10]**

**QUESTION 2**  
**COMPUTER ARCHITECTURE**

The diagram below represents some of the items that are found on the motherboard of a computer. Questions 2.1 and 2.2 refer to this diagram.



2.1 For each of the following sentences (2.1.1 - 2.1.9) write down the letter from the diagram which completes that sentence. (Example: 2.1.10 H )

- 2.1.1 Component \_\_\_\_\_ has an ALU (Arithmetic Logic Unit) and a CU (control unit).
- 2.1.2 Component \_\_\_\_\_ can take the form of SDRAM or DDR RAM.
- 2.1.3 Component \_\_\_\_\_ is a form of SRAM (static RAM).
- 2.1.4 Component \_\_\_\_\_ is a form of dynamic RAM.
- 2.1.5 Component \_\_\_\_\_ enables the computer to display graphics faster.
- 2.1.6 Component \_\_\_\_\_ stores the BIOS programs.

- 2.1.7 Komponent \_\_\_\_\_ gebruik 'n kwarskristal.
- 2.1.8 Komponent \_\_\_\_\_ behou sy inhoud (data en instruksies) wanneer die rekenaar afgeskakel word.
- 2.1.9 Komponente \_\_\_\_\_ en \_\_\_\_\_ maak deel uit van die eksterne bus. (10)

2.2 Wat word gewoonlik in komponent F gestoor? (2)

2.3 'n Stiffie / disket kan gebruik word om lêers vanaf die huis na 'n rekenaar by die skool of werk te neem. Vir die volgende tabel, voltooi Kolom A (toestel) en B (metode) om nog TWEE toestelle aan te dui wat vir dieselfde doel gebruik kan word. Skryf slegs die vraagnommers 2.3.1 – 2.3.4 en jou antwoorde neer.

<b>Kolom A</b>	<b>Kolom B</b>
Toestel	Watter metode word gebruik om data na hierdie toestel te skryf? (Opties, magneties of elektries)
Stiffie / disket	Magneties
2.3.1	2.3.2
2.3.3	2.3.4

(4)

2.4 Pas elk van die onderstaande beskrywings (2.4.1 tot 2.4.4) by die korrekte term in die regterkantste kolom. Skryf slegs die vraagnommer en die letter neer. (byvoorbeeld, 2.4.5 K)

2.4.1 Wanneer 'n rekenaar aangeskakel word, maak hierdie stel programme seker dat sekere komponente gekoppel is en behoorlik kommunikeer	A. hardeskyf
2.4.2 Hierdie roetine laai die bedryfstelsel in RAM	B. POST
2.4.3 Dit word as sekondêre geheue in die rekenaar gebruik	C. RAM
2.4.4 'n Koppelvlak wat vir hardeskywe gebruik word	D. programlaaiër (program loader)
	E. SCSI
	F. GUI

(4)

- 2.1.7 Component \_\_\_\_\_ uses a quartz crystal.
- 2.1.8 Component \_\_\_\_\_ retains its contents (data and instructions) when the computer is switched off.
- 2.1.9 Components \_\_\_\_\_ and \_\_\_\_\_ form part of the external bus. (10)

2.2 What is usually stored in component F? (2)

2.3 A floppy / diskette can be used to take files from home to a computer at school or work. For the following table complete Columns A (device) and B (method) to show TWO more devices that can be used for the same purpose. Write only the question numbers 2.3.1 – 2.3.4 and your answers. (4)

<b>Column A</b>	<b>Column B</b>
<i>Device</i>	<i>What method is used to write data to this device? (optical, magnetic, or electric)</i>
Stiffy / diskette	Magnetic
2.3.1	2.3.2
2.3.3	2.3.4

2.4 Match each of the descriptions below (2.4.1 to 2.4.4) to the correct term chosen from the right-hand column. Write only the question number and the letter (for example, 2.4.5 K).

2.4.1 When a computer is started up, this set of programs checks whether certain components are connected and communicating properly	A. hard disk
2.4.2 This routine loads the operating system into RAM	B. POST
2.4.3 This is used as secondary memory in the computer	C. RAM
2.4.4 An interface used for hard drives	D. program loader
	E. SCSI
	F. GUI

(4)

2.5 Dui aan of die onderstaande stellings WAAR of ONWAAR is. Skryf slegs die vraagnommer en WAAR of ONWAAR neer.

2.5.1	Die Universal Serial Bus ondersteun Plug and Play-tegnologie	WAAR/ONWAAR
2.5.2	Die PCI-bus het sy eie beheerder	WAAR/ONWAAR
2.5.3	Die Universal Serial Bus dra data oor tussen kasseheue (cache memory) en die SVE (CPU)	WAAR/ONWAAR
2.5.4	Die PCI-bus kan data na en van 'n modem oordra.	WAAR/ ONWAAR
2.5.5	'n Drukker, aftaster (scanner) en 'n digitale kamera kan terselfdertyd aan die Universal Serial Bus gekoppel wees.	WAAR/ONWAAR
2.5.6	Die PCI-bus bestaan uit 'n databus, adresbus en 'n beheerbus	WAAR/ONWAAR

(6)

2.6 Noem al die poorte uit die onderstaande lys wat gebruik kan word om 'n muis in te prop.

- A. LPT
- B. PS/2
- C. COM (serie-poort) (serial port)
- D. USB

(3)

2.7 Gee TWEE feite oor PCI Express-tegnologie.

(2)

[31]

### VRAAG 3 STELSELPROGRAMMATUUR

3.1 Noem DRIE funksies van 'n bedryfstelsel.

(3)

3.2 Die tydskrif *PCMaklik* het 'n afdeling waar lesers vrae kan vra oor rekenaars. Beantwoord Vraag 3.2.1 tot 3.2.5 wat in hierdie tydskrif verskyn het.

3.2.1 Ek het so pas 'n nuwe rekenaar gekoop om by die huis as 'n alleenstaande rekenaar (standalone) te gebruik. Ek het gehoor dat daar minstens twee bedryfstelsels is wat ek kan gebruik wat nie deur Microsoft vervaardig word nie. Kan jy my TWEE name van sulke bedryfstelsels gee?

(2)

b.o.



2.5 For each of the following statements, indicate whether it is TRUE or FALSE. Write only the question number and TRUE or FALSE.

2.5.1	The Universal Serial Bus supports Plug and Play technology	TRUE/FALSE
2.5.2	The PCI bus has its own controller	TRUE/FALSE
2.5.3	The Universal Serial Bus transfers data between cache memory and the CPU	TRUE/FALSE
2.5.4	The PCI bus can transfer data to and from a modem	TRUE/FALSE
2.5.5	A printer, scanner and digital camera can all be connected to the Universal Serial Bus at the same time	TRUE/FALSE
2.5.6	The PCI bus consists of a data bus, address bus and control bus	TRUE/FALSE

(6)

2.6 From the list below, name all the ports which can be used to plug in a mouse.

- A. LPT
- B. PS/2
- C. COM (serial port)
- D. USB

(3)

2.7 Give TWO facts about PCI Express technology.

(2)

**[31]**

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

3.1 Name THREE functions of an operating system.

(3)

3.2 *PCEasy Magazine* has a section where readers can ask questions about computers. Answer Questions 3.2.1 to 3.2.5 that appeared in this magazine.

3.2.1 I've just bought a new computer to use at home as a standalone. I've heard there are at least two operating systems that I could use, which are not made by Microsoft. Can you give me TWO names of such operating systems?

(2)

- 3.2.2 Hallo, my naam is Frankie. Nou die dag was daar 'n kragonderbreking terwyl ek op my rekenaar gewerk het. Toe ek die rekenaar weer aanskakel, het 'n blou skerm verskyn en 'n program met die naam Scandisk begin uitvoer. Wat doen Scandisk? (2)
- 3.2.3 Hallo, dankie vir 'n wonderlike tydskrif! Ek het MacAfee Anti-virus op my rekenaar. My vriend het vir my Norton Anti-virus gegee. Sou jy aanbeveel dat ek altwee anti-virusprogramme op my rekenaar installeer? (Let wel: gee 'n rede vir jou antwoord.) (2)
- 3.2.4 Liewe PCMaklik, ek het 'n bietjie na Ericsson Smartphones gekyk. Hulle sê dat die Ericsson P910 multitaakverwerking (multitasking) kan doen, terwyl die P800 dit nie kan doen nie. Wat is die definisie van **multitaakverwerking**? (1)
- 3.2.5 Liewe PCMaklik, kan jy asseblief vir my sê wat **Palm OS** is? (2)

3.3 Die onderstaande tabel bevat terme wat op stelselprogrammatuur van toepassing is. Pas elkeen van die terme in die tweede kolom by die korrekte beskrywing in die regterkantste kolom. Skryf slegs die vraagnommer en die letter neer. (byvoorbeeld, 3.3.8 H)

3.3.1	buffer	A	'n Program wat take (prosesse) in 'n tou (queue) hou
3.3.2	virtuele geheue	B	'n Koppelvlak wat die gebruiker toelaat om keuses aan te dui deur op ikone (prentjies) te klik
3.3.3	kern (kernel)	C	'n Tydelike stoorarea in primêre geheue
3.3.4	deurvoer (throughput)	D	'n Tipe indeks wat deur die bedryfstelsel gebruik word om inligting van elke lêer op die hardeskyf te stoor
3.3.5	GUI	E	Die sentrale gedeelte van die bedryfstelsel wat vir alle belangrike take verantwoordelik is
3.3.6	spooler	F	'n Area op die hardeskyf wat deur die bedryfstelsel gebruik word om sommige van die data en instruksies vir huidige prosesse te stoor
3.3.7	gids (directory)	G	Die aantal instruksies wat binne een tydseenheid deur die SVE (CPU) verwerk kan word

(7)  
[19]

- 3.2.2 Hi, my name's Frankie. The other day there was a power cut while I was working on my computer. When I started the computer again, this blue screen came up, and a program called Scandisk started running. What does Scandisk do? (2)
- 3.2.3 Hi, thanks for a great magazine! I have MacAfee Antivirus on my computer. My friend has given me Norton Antivirus. Would you recommend that I install both anti-virus programs on my computer? (Note: give a reason for your answer.) (2)
- 3.2.4 Dear PCEasy, I've been checking out Ericsson Smartphones. They say that the Ericsson P910 is capable of multitasking, but the P800 cannot do multitasking. What is the definition of **multitasking**? (1)
- 3.2.5 Dear PCEasy, can you please tell me what is **Palm OS**? (2)

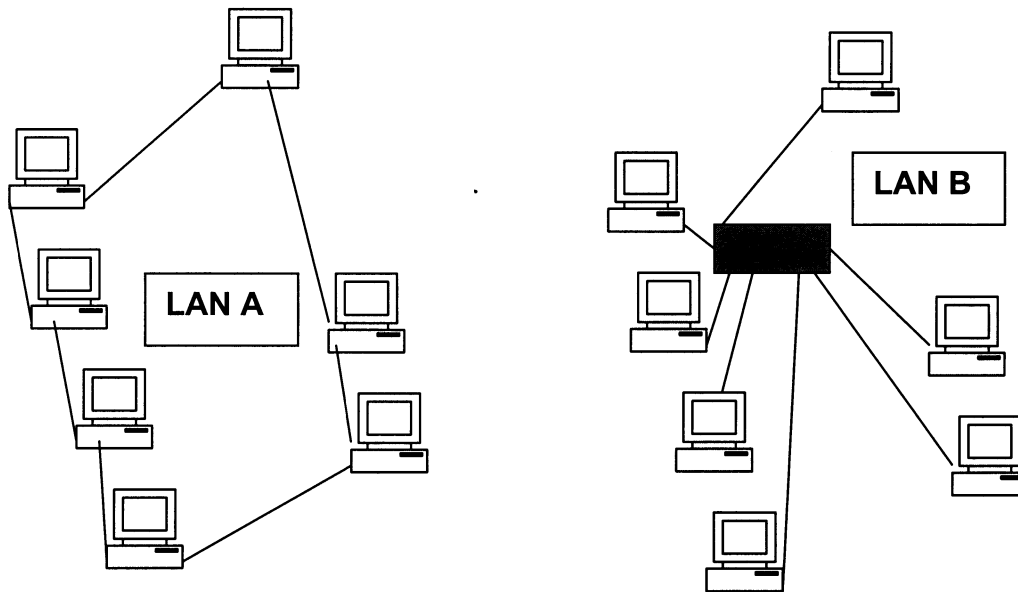
3.3 The table below contains terms pertaining to system software. Match each of the terms in the second column to the correct description from the right-hand column. Write only the question number and the letter (for example, 3.3.8 H).

3.3.1	buffer	A	A program which holds jobs (processes) in a queue
3.3.2	virtual memory	B	An interface which allows the user to indicate choices by clicking on icons (pictures)
3.3.3	kernel	C	A temporary storage area in primary memory
3.3.4	throughput	D	A type of index used by the operating system to keep information about each file on the hard disk
3.3.5	GUI	E	The central part of an operating system which is responsible for all important tasks
3.3.6	spooler	F	An area on the hard disk used by the operating system to store some of the data and instructions for current processes
3.3.7	directory	G	The number of instructions that can be processed by the CPU in one time unit

(7)  
**[19]**

**VRAAG 4  
DATAKOMMUNIKASIE**

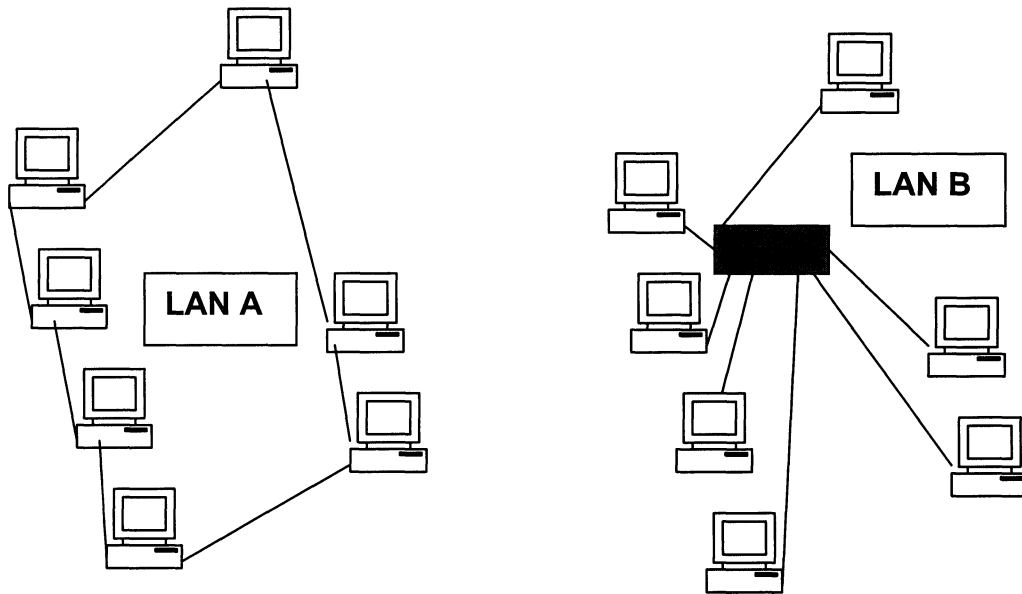
Vraag 4.1 – 4.3 verwys na die volgende sketse van twee LAN's:



- 4.1 Watter topologie word gebruik in
- 4.1.1 LAN A? (1)
- 4.1.2 LAN B? (1)
- 4.2 LAN B gebruik Ethernet-argitektuur met UTP (unshielded twisted pair)-kabels.
- 4.2.1 Gee EEN feit oor gedraaidepaar-kabels (shielded of unshielded). (1)
- 4.2.2 Buiten gedraaidepaar-kabels (shielded of unshielded), noem TWEE ander tipes kabels wat in 'n Ethernet-argitektuur gebruik kan word. (2)
- 4.2.3 Watter een van die volgende twee mediatogangsmetodes sal in LAN B gebruik word: CSMA/CD of tekenaanstuur? (1)
- 4.3 LAN B gebruik 'n switch. 'n Switch (ook 'n intelligente hub genoem) koppel nie net die rekenaars nie, maar voer ook twee ander take uit. Beskryf hierdie TWEE take. (2)

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

Questions 4.1 – 4.3 refer to the following sketch of two LANs:



- 4.1 What topology is used in
  - 4.1.1 LAN A? (1)
  - 4.1.2 LAN B? (1)
- 4.2 LAN B is using Ethernet architecture, with UTP (unshielded twisted pair) cables.
  - 4.2.1 Give ONE fact about twisted pair (shielded or unshielded) cables. (1)
  - 4.2.2 Apart from twisted pair cables (shielded or unshielded), name TWO other kinds of cables which could be used in an Ethernet architecture. (2)
  - 4.2.3 Which one of the following two media access methods would be used in LAN B: CSMA/CD or token passing? (1)
- 4.3 LAN B uses a switch. A switch (also called “intelligent hub”) does not only connect the computers, it also performs two other tasks. Describe these TWO tasks. (2)

- 4.4 Elke stelling hieronder verwys na óf CSMA/CD óf tekenaanstuur. Dui vir elk van Vraag 4.4.1 – 4.4.4 watter een van toepassing is. (Skryf slegs die vraagnommer en die antwoord neer. Voorbeeld: 4.4.5 CSMA/CD 4.4.6 Tekenaanstuur.)

**Media-toegangsmetodes:**

4.4.1	Werkstasies kan vasstel of 'n botsing plaasgevind het	CSMA/CD of teken-aanstuur
4.4.2	Hierdie metode word ook in FDDI-argitektuur gebruik	CSMA/CD of teken-aanstuur
4.4.3	In hierdie metode vind geen botsings plaas nie.	CSMA/CD of teken-aanstuur

(3)

- 4.5 Netwerkkabels gee sekere probleme. In die onderstaande tabel word **seinverswakking** as 'n voorbeeld gegee. Teken hierdie tabel in jou antwoordboek oor en voltooi dit om nog twee kabelprobleme uit te wys (naam van probleem **en** beskrywing). Jy hoef nie die voorbeeld wat gegee is, weer neer te skryf nie.

Kabelprobleem	Beskrywing
Voorbeeld: Seinverswakking ("Attenuation")	Die datasein verloor sy sterkte soos dit verder deur die kabel gaan
4.5.1	
4.5.2	

(4)

- 4.6 Deur ongeleide media te gebruik, kan data tussen rekenaars oorgedra word sonder die gebruik van kables. Kies uit die onderstaande lys (A – C) een voorbeeld van 'n ongeleide medium wat gebruik kan word om data te versend

4.6.1 binne 'n enkele kamer.

4.6.2 vanaf Johannesburg na Tshwane, binne lyn van sig.

4.6.3 vanaf Johannesburg na Londen, England.

(3)

A. satellietmikrogolf	B. landmikrogolf	C. infrarooi
-----------------------	------------------	--------------

- 4.7 Gee vir elkeen van die media in die onderstaande lys, EEN nadeel vir die gebruik daarvan.

4.7.1 Satellietmikrogolf

4.7.2 Landmikrogolf

4.7.3 Infrarooi

(3)

b.o.

4.4 Each statement below refers to either CSMA/CD or token passing. For each of Questions 4.4.1 – 4.4.3 indicate which one applies to that statement. (Write down only the question number and the answer. Example: 4.4.5 CSMA/CD    4.4.6 Token passing.)

**Media access methods:**

4.4.1	Workstations can detect whether a collision has taken place	CSMA/CD or token passing
4.4.2	This method is also used in FDDI architecture	CSMA/CD or token passing
4.4.3	In this method no collisions take place	CSMA/CD or token passing

(3)

4.5 Network cables present certain problems. In the table below **attenuation** is given as an example. Copy this table to your answer book and complete it to show two more cable problems (name of problem **and** description). You need not copy the example.

<b>Cable problem</b>	<b>Description</b>
<b>Example:</b> Attenuation	The data signal loses its strength as it travels through the cable
4.5.1	
4.5.2	

(4)

4.6 Using wireless media, data can be transferred between computers without the use of cables. From the list below (A – C), choose one example of a wireless medium that can be used to transfer data

4.6.1      within one room.

4.6.2      from Johannesburg to Tshwane, within line of sight.

4.6.3      from Johannesburg to London, England.

(3)

A. satellite microwave	B. terrestrial microwave	C. infrared
------------------------	--------------------------	-------------

4.7 For each of the media listed below, give ONE disadvantage of using that medium.

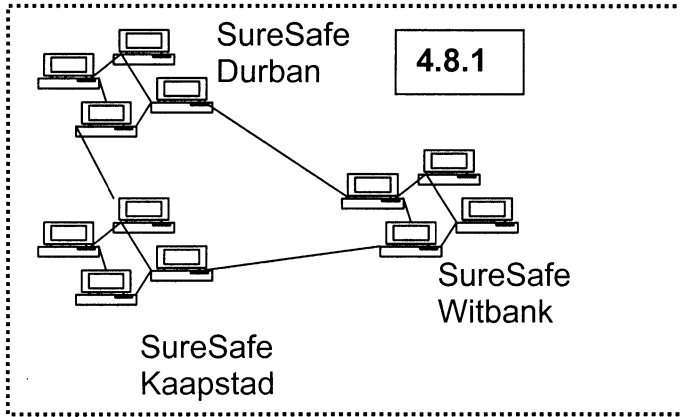
4.7.1      Satellite microwave

4.7.2      Terrestrial microwave

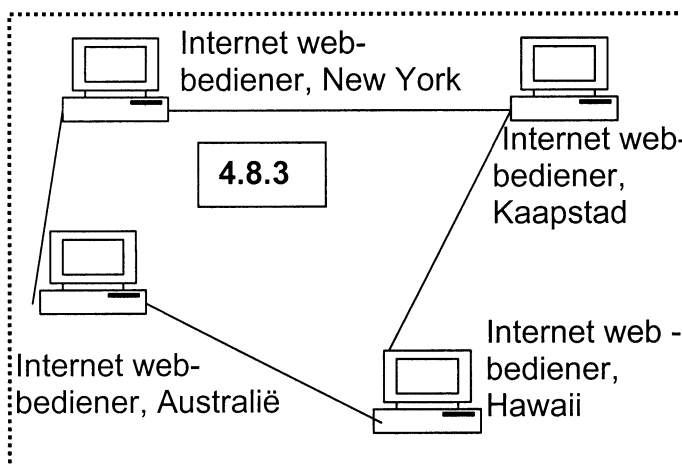
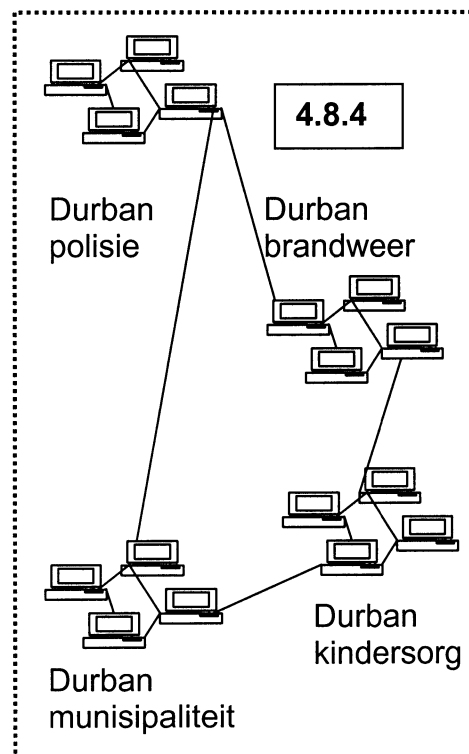
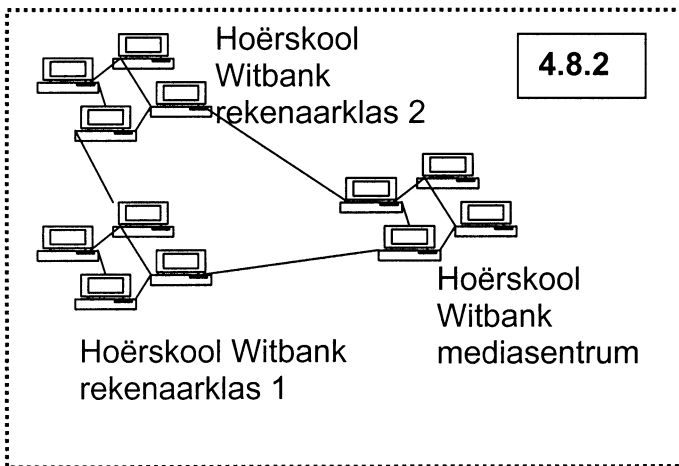
4.7.3      Infrared

(3)

4.8 Hieronder is vier sketse van netwerke, genommer 4.8.1 tot 4.8.4. Die tabel langsaan toon verskillende **tipes** netwerke (genommer A tot D). Skryf die vraagnommers 4.8.1 tot 4.8.4 neer en daarnaas, die letter wat aandui watter tipe netwerk in die skets getoon word. (Voorbeeld: 4.8.5 E.)



A	MAN
B	Ondernemings (Enterprise) WAN
C	GAN
D	LAN

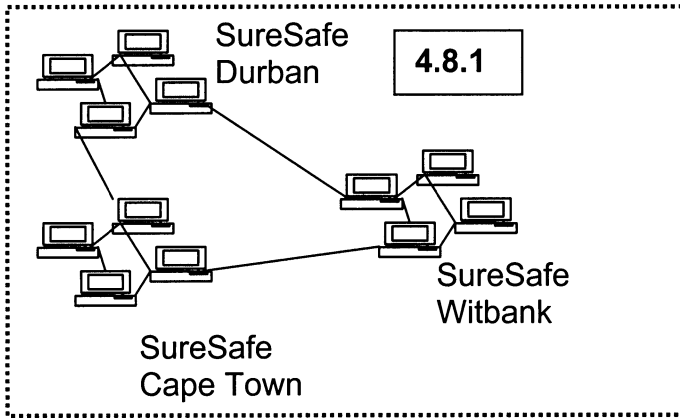


(4)

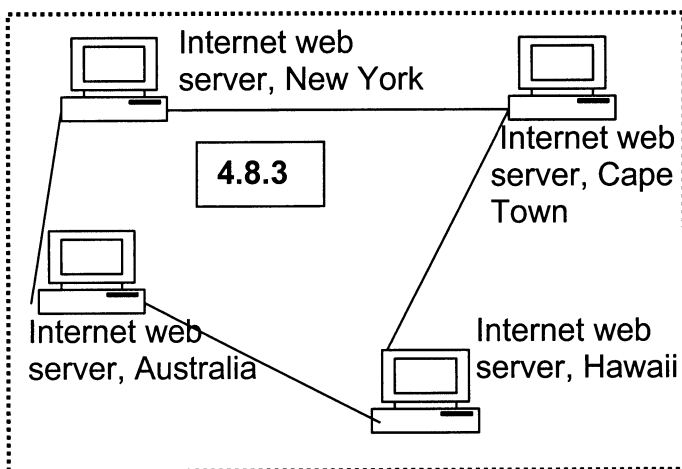
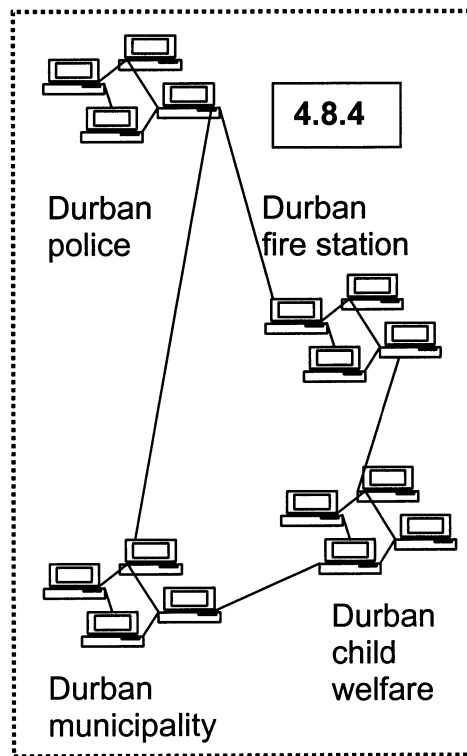
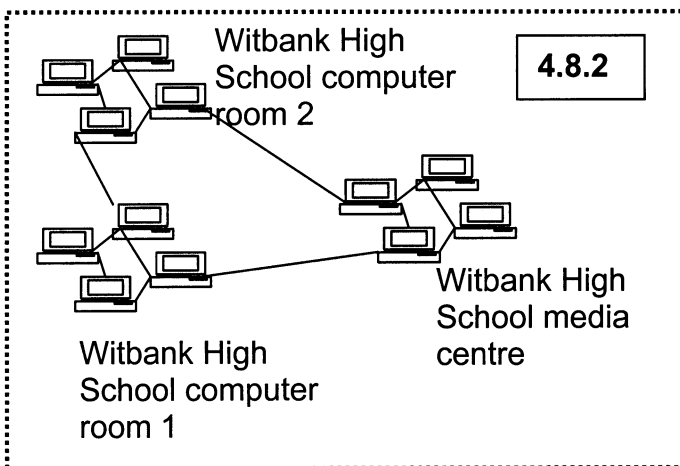
b.o.



4.8 Below are four sketches of networks, numbered 4.8.1 to 4.8.4. The table labelled A to D shows different **types** of networks. Write down the question numbers 4.8.1 to 4.8.4 and next to each, the letter which indicates what type of network is shown in the sketch. (Example: 4.8.5 E.)



A	MAN
B	Enterprise WAN
C	GAN
D	LAN



(4)

4.9 Item K tot N hieronder verwys na metodes om data oor netwerke te versend:

K. pakkieskakeling	L. boodskapskakeling	M. selskakeling	N. lynskakeling
--------------------	----------------------	-----------------	-----------------

Die onderstaande tabel toon kenmerke van hierdie metodes. Kies uit die bostaande lys die toepaslike skakelingsmetode vir elk van 4.9.1 tot 4.9.3.

4.9.1	'n volledige boodskap word via 'n toegewyde kanaal gestuur
4.9.2	die boodskap word in pakkies met verskillende lengtes opgebreek; daar is nie 'n toegewyde pad of roete nie
4.9.3	die boodskap word in eenhede van 'n vasgestelde grootte opgebreek; 'n vasgestelde verbinding word vir 'n kort tydperk gebruik

(3)

4.10 Op enige netwerk is dit belangrik dat **data** teen beskadiging, verlies of diefstal beskerm word. Gebruik volsinne en noem VIER verskillende metodes om data in 'n netwerk te beskerm.

(Let wel: nommer jou antwoorde van 4.10.1 tot 4.10.4.)

(4)

4.11 Dui vir elk van 4.11.1 tot 4.11.3 aan of die stelling WAAR of ONWAAR is.

4.11.1	'n Brug dra seine slegs na sekere uitgesoekte segmente van 'n netwerk oor	WAAR/ONWAAR
4.11.2	'n Versterker (repeater) kan data tussen netwerke met verskillende argitekture oordra	WAAR/ONWAAR
4.11.3	'n Deurgangspoort (gateway) kan hardeware of sagteware wees	WAAR/ONWAAR

(3)

[35]

4.9 Items K to N below refer to methods of transferring data across networks:

K. packet switching	L. message switching	M. cell switching	N. circuit switching
---------------------	----------------------	-------------------	----------------------

The table below lists characteristics of these methods. For each of 4.9.1 to 4.9.3 choose from the list above the switching method that applies to it.

4.9.1	a complete message is sent via a dedicated channel
4.9.2	message is broken up into variable length packets; there is no dedicated path or route
4.9.3	message is broken up into fixed size units; uses a fixed connection for a short period of time

(3)

4.10 On any network it is very important that **data** is protected against damage, loss or theft. Using full sentences, name FOUR different methods of protecting data on a network.

(Please note: number your answers from 4.10.1 to 4.10.4.)

(4)

4.11 For each of 4.11.1 to 4.11.3 indicate whether the statement is TRUE or FALSE.

4.11.1	A bridge passes signals only to selected segments of a network	TRUE/FALSE
4.11.2	A repeater can transfer data between networks with different architectures	TRUE/FALSE
4.11.3	A gateway can be either hardware or software	TRUE/FALSE

(3)

**[35]**

VRAAG 5  
INTERNET EN NUWE TEGNOLOGIE

Die onderstaande uittreksel toon 'n webbladsy met die titel *New technology snippets*. Bestudeer die webbladsy en beantwoord dan die vrae wat volg.

The screenshot shows a Microsoft Internet Explorer window displaying a web page titled "New technology snippets for today". The page content includes:

- Navigation links: Home, Hot topics, Internet forum, Recent articles.
- Section: **What is Bluetooth?**

Bluetooth is a wireless technology that allows computers, phones and other devices to talk to each other. You'll find Bluetooth in mobile phones, handheld computers, laptops, printers, handheld organisers, and all sorts of products. "

**WAP the heck is going on?** is an article which describes the advantages of WAP and Bluetooth. This article states:

"Using Bluetooth technology, information can be swapped between gadgets with ranges of 30 to 300 feet". Read more
- Text: "This is a pen which transmits data using Bluetooth." (with a small image of a pen).
- Text: "More articles at:" followed by two URLs:
  - <http://www.bluetooth.com/satellite/gps.html>
  - <http://www.hotstuff.com/handhelds/bluetooth.html>
- Text: "or go to www.google.com to find lots more information"
- Section: **What is the meaning of 184.23.145.6?**

Read more...
- Text: "This digital camera can send images to your PC using Bluetooth." (with a small image of a digital camera).
- Text: "Our contributors to this site:" followed by a list of email addresses:
  - marlize@hotmail.com
  - tony@mweb.co.za
  - mpho@tiscall.co.za
  - thandi@grs.gov.za

Handwritten annotations on the screenshot include:

- A**: A circle around the IP address 184.23.145.6.
- B**: A circle around the text "WAP and Bluetooth".
- C**: A circle around the text "Using Bluetooth technology, information can be swapped between gadgets with ranges of 30 to 300 feet".
- D**: A circle around the URL <http://www.hotstuff.com/handhelds/bluetooth.html>.
- E**: A circle around the text "More articles at:".
- Z**: A circle around the list of email addresses.

- 5.1 Hierdie webbladsy word in 'n webblaaiër (web browser) vertoon. Gee die name van enige TWEE webblaaiërs. (2)
- 5.2 Pas elk van die terme 5.2.1 tot 5.2.5 by een van die items wat A – E op die webbladsy gemerk is. Skryf slegs die vraagnommer en die letter neer (bv. 5.1.12 K). Jy moet die letters op so 'n manier pas dat elke letter van A tot E slegs een keer gebruik word.
- 5.2.1 'n Domein-naam
  - 5.2.2 'n URL
  - 5.2.3 Die taal wat gebruik word om webbladsye te skep

QUESTION 5  
INTERNET AND NEW TECHNOLOGY

The extract below shows a web page entitled *New technology snippets*. Study the web page and answer the questions that follow.

The screenshot shows a Microsoft Internet Explorer browser window. The address bar contains the URL <http://www.technology.snippets.com/october/pageone.html>. The page content includes a navigation menu on the left with links for Home, Hot topics, Internet forum, and Recent articles. The main heading is "New technology snippets for today". Below this is a section titled "What is Bluetooth?" which defines Bluetooth as a wireless technology. Another section titled "WAP the heck is going on?" mentions an article about WAP and Bluetooth. A quote states: "Using Bluetooth technology, information can be swapped between gadgets with ranges of 30 to 300 feet". Below this, there is a section "More articles at:" with two URLs: <http://www.bluetooth.com/satellite/gps.html> and <http://www.hotstuff.com/handhelds/bluetooth.html>. There is also a link to [www.google.com](http://www.google.com). A section titled "Our contributors to this site:" lists several email addresses. There are also images of a hand holding a pen and a digital camera. Handwritten annotations include circles labeled A through Z pointing to specific elements: A points to the IP address "184.23.145.6?", B points to the word "Bluetooth", C points to the word "Bluetooth" in the quote, D points to the URL "http://www.bluetooth.com/satellite/gps.html", E points to the URL "http://www.hotstuff.com/handhelds/bluetooth.html", and Z points to the email address "marlize@hotmail.com".

- 5.1 This web page is displayed in a web browser. Give the names of any TWO web browsers. (2)
- 5.2 Match each of the terms 5.2.1 to 5.2.5 to one of the items marked A – E on the web page. Write only the question number and the letter (e.g. 5.1.12 K). You must match the letters in such a way that each letter from A to E is used only once.
- 5.2.1 A domain name
- 5.2.2 A URL
- 5.2.3 The language which is used to create web pages

- 5.2.4 Die protokol wat gebruik word om data te versend na handhoubare toestelle
- 5.2.5 'n IP-adres (5)
- 5.3 Watter bekende soek-enjin word in hierdie webbladsy genoem? (1)
- 5.4 Die onderstreepte titels in hierdie artikel is hiperskakels (hyperlinks). Wat is 'n hiperskakel? (1)
- 5.5 Die area wat Z gemerk is, wys die e-posadresse van persone wat bygedra het tot hierdie webblad.
- 5.5.1 Een van hierdie e-posadresse dui aan dat die persoon in diens van die regering is. Watter e-posadres is dit? (1)
- 5.5.2 Skryf die name van TWEE ISP's (Internet Service Providers / Internet Diensverskaffers) neer wat uit hierdie e-pos-adresse afgelei kan word. (2)
- 5.6 Bluetooth is ongeleide tegnologie. Wat gebruik Bluetooth om data te versend: lig of radio? (1)
- 5.7 Die navigasiesleutels (buttons) sluit 'n skakel (link) na die Internet-forum vir *Technology Snippets* in. Wat is 'n Internet-forum? (2)
- 5.8 Die digitale kamera kan data oordra deur Bluetooth te gebruik. Beskryf EEN ander manier waarop data vanaf 'n digitale kamera na 'n lessenaarrekenaar (desktop) oorgedra kan word. (1)
- 5.9 Noem DRIE take wat uitgevoer kan word deur van 'n PDA gebruik te maak. (3)
- [19]**

## VRAAG 6 SOSIALE IMPLIKASIES

- 6.1 Op 26 Desember 2004 het 'n tsunami (gety golf) in Asië die dood van meer as 225 000 mense veroorsaak. In 1931 het 'n vloed langs die Yangtze Rivier in Sjina die dood van 3,7 miljoen mense veroorsaak deur verdrinking, siekte en uithongering.
- Beskryf TWEE maniere waarop die bestaan van die Internet 'n verandering gebring het in die manier waarop die wêreld van hierdie soort rampe hoor en daarop reageer. (2)
- 6.2 Rekenaarvirsusse is vir ons almal 'n ernstige bedreiging. Beskryf TWEE maniere waarop die bestaan van virusse 'n impak op handel en besigheid het. (2)
- 6.3 Die skep en verspreiding van rekenaarvirsusse word as 'n rekenaarmisdad geklassifiseer. Noem TWEE ander rekenaarmisdade. (2)

- 5.2.4 The protocol used in the transfer of data to handheld devices
- 5.2.5 An IP address (5)
- 5.3 Which well-known search engine is mentioned in this web page? (1)
- 5.4 The underlined titles in this article are hyperlinks. What is a hyperlink? (1)
- 5.5 The area marked Z shows the e-mail addresses of contributors to this site.
- 5.5.1 One of these e-mail addresses indicates that the person is employed by the government. Which e-mail address is this? (1)
- 5.5.2 Write down the names of TWO ISPs (Internet Service Providers) that can be deduced from these e-mail addresses. (2)
- 5.6 Bluetooth is a wireless technology. What does Bluetooth use to transfer data: light or radio? (1)
- 5.7 The navigation buttons include a link to the Internet forum for *Technology Snippets*. What is an Internet forum? (2)
- 5.8 The digital camera can transfer data using Bluetooth. Describe ONE other way to transfer data from a digital camera to a desktop computer. (1)
- 5.9 List THREE tasks that can be carried out using a PDA. (3)
- [19]**

**QUESTION 6  
SOCIAL IMPLICATIONS**

- 6.1 On 26 December 2004 a tsunami (tidal wave) in Asia caused the deaths of more than 225 000 people. In 1931 a flood along the Yangtze River in China caused the deaths of 3,7 million people through drowning, disease, and starvation.
- Describe TWO ways in which the existence of the Internet has changed the way in which the world hears of and reacts to disasters such as these. (2)
- 6.2 Computer viruses are a serious threat to all of us. Describe TWO ways in which the existence of viruses have an impact on business and commerce. (2)
- 6.3 Creating and spreading computer viruses is classified as a computer crime. Name TWO other computer crimes. (2)

- 6.4 In 'n klein dorpie in die Karoo het 'n sekere onderneming pas e-pos-fasiliteite bekom. Beskryf TWEE maniere waarop die gebruik van e-pos die daaglikse bestuur van die onderneming sal verbeter. (2)
- 6.5 Verduidelik elk van die volgende terme:
- 6.5.1 e-commerce (2)
- 6.5.2 spyware (2)
- 6.5.3 spam (2)
- 6.6 Die gebruik van rekenaars maak dit moontlik om baie besighede van die huis af te bedryf.
- 6.6.1 Noem EEN voordeel om van die huis af te werk. (1)
- 6.6.2 Noem EEN nadeel om van die huis af te werk. (1)
- [16]**

**VRAAG 7**  
**TOEPASSINGSPROGRAMMATUUR EN PAKKETTE**

- 7.1 Die onderstaande tabel toon 'n lys van programmatuur. Skryf die vraagnommer van elke item neer en daarnaas skryf:  
 T – as dit toepassingprogrammatuur is.  
 S – as dit stelselprogrammatuur is. (Byvoorbeeld: 7.1.5 S)

	<b>Naam van program</b>	<b>Toepassingsprogrammatuur of stelselprogrammatuur</b>
7.1.1	Photoshop	T of S
7.1.2	Excel	T of S
7.1.3	Defrag	T of S
7.1.4	Unix	T of S

- 7.2 Gee EEN voorbeeld wat aandui hoe 'n teksredigeerder (soos Notepad) van 'n woordverwerker verskil. (Teksredigeerder = text editor). (1)



- 6.4 In a small town in the Karoo, a certain business has just acquired e-mail facilities. Describe TWO ways in which the use of e-mail will improve the day-to-day running of this business. (2)
- 6.5 Explain each of the following terms:
- 6.5.1 e-commerce (2)
- 6.5.2 spyware (2)
- 6.5.3 spam (2)
- 6.6 The use of computers makes it possible to run many businesses from home.
- 6.6.1 Name ONE advantage of working from home. (1)
- 6.6.2 Name ONE disadvantage of working from home. (1)
- [16]**

**QUESTION 7  
APPLICATIONS AND PACKAGES**

- 7.1 The table below shows a list of software. Write down the question number of each item, and next to it, write:  
 A – if this is application software  
 S – if this is system software (Example: 7.1.5 S)

	<b>Name of program</b>	<b>Application software or system software</b>
7.1.1	Photoshop	A or S
7.1.2	Excel	A or S
7.1.3	Defrag	A or S
7.1.4	Unix	A or S

- (4)
- 7.2 Give ONE example of how a text editor (like Notepad) is different from a word processor. (1)

7.3 Tom vervaardig en verkoop tafels. Hy gebruik 'n sigblad om die berekening van pryse, areas, ensovoorts te doen. Voorbeeld A en B wys dieselfde sigblad, met die merker (cursor) op verskillende plekke.

Bestudeer die voorbeelde en beantwoord die vrae wat volg:

**Voorbeeld A: Merker in sel H3**

Lys van tafels						11-Jul-06
		Area van tafelblad	Prys	Hoeveel is bestel	Prys met aflewering	
3	Vierkantige tafel	2.5 m <sup>2</sup>	R 1,130.00	3 tafels	R1,280.00	
4	Reghoekige tafel	3.25 m <sup>2</sup>	R 1,450.00	4 tafels	R 1,560.00	
5	Ronde tafel	3.15 m <sup>2</sup>	R 1,300.00	2 tafels	R 1,450.00	
6	Ovaal tafel	2.75 m <sup>2</sup>	R 1,350.00	5 tafels	R 1,500.00	

**Voorbeeld B: Merker in sel D3**

Lys van tafels						11-Jul-06
		Area van tafelblad	Prys	Hoeveel is bestel	Prys met aflewering	
3	Vierkantige tafel	2.5 m <sup>2</sup>	R 1,130.00	3 tafels	R 1,280.00	
4	Reghoekige tafel	3.25 m <sup>2</sup>	R 1,450.00	4 tafels	R 1,560.00	
5	Ronde tafel	3.15 m <sup>2</sup>	R 1,300.00	2 tafels	R 1,450.00	
6	Ovaal tafel	2.75 m <sup>2</sup>	R 1,350.00	5 tafels	R 1,500.00	

7.3.1 Watter kolom is weggesteek (hidden)?

7.3.2 Skryf enige sel neer wat teks bevat wat as superskrif (superscript) geformateer is. (Voorbeeld van 'n antwoord: K12).

7.3 Tom makes and sells tables. He keeps a spreadsheet to do calculations of prices, areas and so on. Examples A and B below show the same spreadsheet, with the cursor in different places.

Study the examples and answer the questions which follow:

**Example A: Cursor in cell H3**

	A	B	C	D	G	H
1	List of tables				11-Jul-06	
2			Area of table top	Price	How many ordered	Price with delivery
3		Square table	2.5 m <sup>2</sup>	R 1,130.00	3 tables	R1,280.00
4		Rectangular table	3.25 m <sup>2</sup>	R 1,450.00	4 tables	R1,560.00
5		Round table	3.15 m <sup>2</sup>	R 1,300.00	2 tables	R1,450.00
6		Oval table	2.75 m <sup>2</sup>	R 1,350.00	5 tables	R1,500.00
7						
8						

**Example B: Cursor in cell D3**

	A	B	C	D	G	H
1	List of tables				11-Jul-06	
2			Area of table top	Price	How many ordered	Price with delivery
3		Square table	2.5 m <sup>2</sup>	R 1,130.00	3 tables	R1,280.00
4		Rectangular table	3.25 m <sup>2</sup>	R 1,450.00	4 tables	R1,560.00
5		Round table	3.15 m <sup>2</sup>	R 1,300.00	2 tables	R1,450.00
6		Oval table	2.75 m <sup>2</sup>	R 1,350.00	5 tables	R1,500.00
7						
8						

7.3.1 Which columns have been hidden?

7.3.2 Write down any cell which contains text that has been formatted as superscript. (Example of an answer: K12).

- 7.3.3 Watter selle is saamgevoeg (merged)? (Voorbeeld van 'n antwoord: K4 – K10).
- 7.3.4 Tom wil bepaal hoeveel tafels in totaal bestel is. Hy tik die volgende in sel G7: =sum(G3:G6)  
 Verduidelik waarom hierdie funksie nie die korrekte antwoord van 14 tafels sal vertoon nie.
- 7.3.5 Die datum in sel G1 wys 11-Jul-06 wanneer Tom op 11 Julie die sigblad oopmaak, en dit wys 12-Jul-06 wanneer hy dit op 12 Julie oopmaak. Watter funksie het Tom in sel G1 getik?
- 7.3.6 In watter kolom is formatering van geldeenheid (currency formatting) toegepas? (6)

7.4 Hieronder is VYF stellings oor databasisse. Skryf by elke stelling die ontbrekende woord neer gekies uit die onderstaande lys. Skryf slegs die vraagnommer en die woord neer (byvoorbeeld: 7.4.6 lêer).

tabel	veld	velde	kategorie	number
funksie	rekord	rekords	sigblad	navraag (query)
desimaal	lêer			

- 7.4.1 'n \_\_\_\_\_ is 'n versameling van rekords.
- 7.4.2 Enige veld het 'n spesifieke datatipe. Drie voorbeelde van datatipes is: teks (text) (of alpha), date/time en \_\_\_\_\_
- 7.4.3 'n \_\_\_\_\_ bestaan uit verskeie velde.
- 7.4.4 Ons skep 'n \_\_\_\_\_ om al die data te kies wat aan sekere kriteria voldoen (voorbeeld: alle punte wat hoër is as 80%).
- 7.4.5 Wanneer ons 'n verslag (report) skep, kan ons spesifiseer dat data gegroepeer word (grouped) volgens 'n sekere \_\_\_\_\_ (voorbeeld: groepeer volgens kleur). (5)

7.3.3 Which cells have been merged? (Example of an answer: K4 – K10).

7.3.4 Tom wants to add up how many tables have been ordered altogether. He types the following in cell G7: =sum(G3:G6). Explain why this function will not show the correct answer of 14 tables.

7.3.5 The date in cell G1 shows 11-Jul-06 when Tom opens the spreadsheet on 11 July, and it shows 12-Jul-06 when he opens it on 12 July. What function did Tom type in cell G1?

7.3.6 In which column has currency formatting been applied? (6)

7.4 Below are FIVE statements regarding databases. For each statement, write down the missing word, chosen from the list below. You may write down only the question number and the word (example: 7.4.6 file).

table	field	fields	category	number
function	record	records	spreadsheet	query
decimal	file			

7.4.1 A \_\_\_\_\_ is a collection of records.

7.4.2 Any field has a specific data type. Three examples of data types are: text (or alpha), date/time and \_\_\_\_\_.

7.4.3 A \_\_\_\_\_ consists of several fields.

7.4.4 We create a \_\_\_\_\_ to select all data which meet specific criteria (example: all marks higher than 80%).

7.4.5 When we create a report, we can specify that the data must be grouped by a certain \_\_\_\_\_ (example: grouped by colour). (5)

7.5 Die onderstaande tabel toon VIER rekenaarprogramme. Pas elkeen van hierdie programme by die korrekte beskrywing in die regterkantste kolom.

Skryf slegs die vraagnommer en die letter neer (byvoorbeeld: 7.5.9 K).

Naam van program	
7.5.1	Autocad
7.5.2	Accpac
7.5.3	Lotus 1-2-3
7.5.4	Microsoft Frontpage

Beskrywing	
A	'n Rekenkunde-program
B	'n Program wat gebruik word om drie-dimensionele ontwerpe te skep
C	'n Ensiklopedie
D	'n Program wat gebruik word om webbladsye te ontwerp
E	'n Sigblad
F	'n Program wat gebruik word om skryfbehoeftes soos besigheidskaartjies te skep
G	'n Databasisprogram

(4)  
**[20]**

**TOTAAL: 150**

**EINDE**

7.5 The table below contains FOUR computer programs. Match each of these programs with the correct description from the right hand column.

Write down only the question number and the letter (for example: 7.5.9 K).

Name of program	
7.5.1	Autocad
7.5.2	Accpac
7.5.3	Lotus 1-2-3
7.5.4	Microsoft Frontpage

Description	
A	An accounting program
B	A program used to create three-dimensional designs
C	An encyclopedia
D	A program used to design web pages
E	A spreadsheet program
F	A program used to create stationery like business cards
G	A database program

(4)  
[20]

**TOTAL: 150**

**END**