Grade 10

INFORMATION TECHNOLOGY

MEMO FOR SAMPLE THEORY PAPER

Time: 2 hours   **Marks: 180**

SECTION A: MULTIPLE CHOICE QUESTIONS

1.1   (c)
1.2   (d)
1.3   (c)
1.4   (d)
1.5   (a)
1.6   (b)
1.7   (a)
1.8   (c)
1.9   (c)
1.10   (d)   (10 x 2 = 20)

SECTION B: HARDWARE AND SYSTEM SOFTWARE

QUESTION 2: COMPUTER ARCHITECTURE AND HARDWARE

2.1   The processor✓ – this affects the overall processing speed of the PC. ✓
         Hard drive✓ – the space available to store data or software ✓
         RAM✓ memory needed to temporary store data and programs while they are being processed ✓   (6)

2.2

     2.2.1   No it is not a problem. ✓
                   The hard drive – 240Gb – this means 240 Gigabyte – the data is stored more permanently✓.
                   Software, application packages and operating systems need to be installed. A huge amount of space
                   is needed for this.

                   512 Mb RAM – this is volatile memory – only available when power is available. This is used for
                   Cache memory and stores operational processes of the CPU and used as temporary✓ placement for
                   data or information. ✓   (4)

     2.2.2   Yes, ✓but in the case of a larger network, 1024Mb would be more sufficient✓.   (2)

2.3   Display unit / the screen or Keyboard ✓ (any one)   (1)

2.4

     2.4.1   Stiffy's have become unreliable as storage devices. Data gets corrupted easily. Stiffy's get
                   damaged easily. Magnetic fields, heat and moisture as well as dust add to the problem. The
                   space for data storage and size of files has also become a problem. ✓✓ (Any two reasons)
                                                                        (2)

     2.4.2   Flash disks/Flash memory ✓changed this because of far more reliability and storage space and
                   easier data transfer. ✓   (2)

     2.4.3   By writing data to CD✓ or DVD. ✓   (any one)   (1)

2.5   No ✓ the RAM size is important as print jobs are buffered to the printer's memory, so that the printing process does not hold up other processes on the PC. ✓ The size of files especially when pictures need to be printed is very important. (2)

2.6

2.6.1   Different devices can communicate with each other without being connected by cables. ✓ (1)

2.6.2   Printer not needed to be next to the computer (CPU), but could be placed more conveniently out of the way (but within 10m of the computer). ✓ Bluetooth can also be used to easily connect to other Bluetooth enabled devices such as PDA's etc (1)

2.7

2.7.1   No✓, desk jet printers not cost effective for high volume of printing✓. (2)

2.7.2   Colour laser printer✓.
         Can still produce good quality printing, but more cost effective than deskjet. ✓ (2)
                                                                                    [26]

QUESTION 3: OPERATING SYSTEM AND SYSTEMS SOFTWARE

3.1

3.1.1   LINUX server software is advertised. ✓ This is system software to be used as operating system software as well as networking software ✓ (2)

3.1.2   Word Processor✓, to type letters and articles on the guesthouse✓.
         Spreadsheet✓, to keep record of expenses.✓ (4)
         (Any other applicable software)

3.1.3   Anti virus program✓. To keep computers virus free✓. (2)
         (Any other applicable systems software)

3.2   The owner could access the folder of this software and try to find an uninstall command to uninstall the antivirus program properly. ✓✓
       OR
       The owner needs to find a control area where the operating system allows the user to uninstall the antivirus software properly. ✓✓ (2)

3.3   Provide the licence number ✓
       Custom / Full install ✓
       Install path ✓
       Provide a password ✓ (4)

3.4   Utility software like Windows Explorer✓ to create the folder structure. Click on the appropriate folder, click on file, new folder, name the folder and press enter. ✓ (2)

3.5   A folder for administrative files✓ and a folder for client information✓. (2)

3.6

3.6.1   A drive where the files are reorganised✓ so that they are stored contiguously ✓and not scattered across the disk.

         New files are added and old files are deleted. New software is installed, etc. This means that "open" spaces appear on the drive where sometimes files cannot fit in. ✓ Data is most of the time split up in several non-contiguous parts or sectors – fragmentation. ✓ (4)

3.6.2   It is not necessary✓ to do this on a daily basis, but rather monthly. ✓ (2)

3.6.3   Disk defragmenter, a windows utility program. ✓ (1)
                                                                                    [25]

QUESTION 4: DATA COMMUNICATIONS AND NETWORKS

4.1 A modem ✓together with a telephone line/leased/digital line.   The modem is used to translate computer (digital) data to sound (analogue) data✓. (2)

4.2 Load appropriate e-mail software ✓
Register with an ISP who will provide you with an e-mail address, username and initial password ✓
Setup the necessary out-going and in-coming services on the computer (2)

4.3 The clients' bill/data will be updated almost immediately. ✓
The bills can also be printed via the network. ✓
Hardware resources such as printers can be shared. ✓
Files and software can be shared. ✓
[Any TWO valid points] (2)

4.4 No. ✓ The computer in the dining room only performs simple calculations and processes.
It does not have to perform heavy duty processing of data and information. ✓ It acts as a client machine and not a server. (2)
[8]

SECTION C: APPLICATIONS AND IMPLICATIONS

QUESTION 5: e-COMMUNICATIONS

5.1 Do not use capital letters only as this is interpreted as shouting ✓
Do not swear or use bad language. ✓
Use friendly and professional language ✓
Do not send large attachments. ✓
Check for errors: spelling and grammar etc. ✓
[Any THREE appropriate answers can be accepted] (3)

5.2 Narrow down – specify a country or province, ✓
Be more specific in search phrase. ✓
Specify word or phrases that must be contained within pages ✓
Only search on the South African domain ✓
[Any THREE relevant responses] (3)

5.3
  5.3.1 A domain name is a unique name assigned to the owner or the business. ✓
  It is a website address that is typed in the browser address line. ✓ (2)
  5.3.2 Example: pauloaltoguesthouse.co.za or pauloaltoguesthouse.com. ✓ Use co.za prefix to indicate a South African location or .com for a commercial venture (1)
  5.3.3 Various organisations handle domain name registration, some for free others at a cost.
  Need to check if domain name is not already used. He can visit a local internet service provider✓ to register or he can apply to register website online. ✓ (2)

5.4 Use for banking purposes and paying accounts. ✓
To purchase goods. ✓ (2)

5.5 Upgrade to ISDN line✓ or ADSL. ✓ (2)

5.6 Send as an attachment. Type email message✓ and attach brochure to email✓. (2)

5.7
  5.7.1 The file or the message contain too much data or photos and some ISP's or firewalls can be set to reject e-mails above a specified size ✓ so reduce the resolution of the pictures in the brochure or reduce the file size by zipping the files✓ (2)
  5.7.2 The file is corrupted, ✓ a virus is activated, the user renamed the file wrongly, the email-server does not allow certain file types and regards it as a security threat. ✓ (2)

5.8 Update antivirus software, ✓ install firewall software ✓ or update network security for the operating system ✓ Activate spam filters on e-mail package. ✓ Purchase/download anti-spam software ✓
[Any TWO appropriate answers] (2)

[23]

QUESTION 6: SOCIAL AND ETHICAL ISSUES

6.1 The time spent will be much less – more customers could be served resulting in increased efficiencies
Can market locally as well as globally✓✓
Accounts speedily settled – customers quickly booked or booked out ✓✓
Errors easily traced – fewer queries, happier customers✓✓
[✓✓✓ x 2 Any THREE appropriate and motivated answers] (6)

6.2 If he bought single-user licence software then this can legally only be installed on a single workstation. For each additional workstation he will need to purchase an additional licence. If he purchased a multi-user licence then this may well cover all the computers on the network. If he has bought a networked licence for the server he only installs the workstation installation on the PC in the dining-room. ✓✓(2)

6.3 The body position – back and neck bending – chair height for arms and hands ✓
Light use – not too dark. ✓
Eyesight – not too near the screen ✓
RSI ✓ (3)
[Any THREE relevant points]

6.4 Take regular breaks during which the user should get up from the computer.
Periodically look away from the screen, preferably at something in the distance so that the eyes can focus on distant objects.
Sit in a relaxed position preferably on a chair designed for use with computers
Use ergonomically designed hardware.
[✓✓ Any TWO appropriate answers] (2)

6.5 She could browse the Internet to be updated on AIDS awareness activities. ✓✓
She could be part of a campaign group via the Internet. ✓✓
She could be part of a support group via the Internet. ✓✓
She could print pamphlets and advertise campaigns and activities at the guesthouse.
[✓✓✓ x 2 Any THREE appropriate answers] (6)

6.6 Refill cartridges✓
Print only when necessary, faxes can be sent directly from the computer, use email. ✓ (2)
[Any TWO appropriate answers]

6.7 Open source software is at present as good as the proprietary products. There are no licence fees involved. No piracy laws. Updating is free – can usually be done via the Internet. Open-Source software is as stable as the counterparts sometimes even more stable. Can be more adaptable towards devices and drivers. Also may be more virus free or infection protected.
[✓✓ Any TWO appropriate responses] (2)
[23]

SECTION D: PROGRAMMING AND SOFTWARE DEVELOPMENT

QUESTION 7: INFORMATION ANALYSIS

7.1   Data type – information is organised according to certain data types – to recognise different types of information ✓✓

Text data – strings - addresses, names, streets, id-numbers, salary numbers, telephone number

Numbers data – integer, real or currency
Delphi examples

Var
        Name: string;
        ID-number:string[13];
        Number:integer;
        Average:real;

Java examples

String name = "";
Vector v = new Vector(5);
int greatest;
boolean found;

[✓✓ Any TWO appropriate data types]   (4)

7.2

The customers' bill could be updated on a database with the accommodation bill. ✓
The customers' do not need to pay several times - one once off payment✓
The financial budget information could be updated for the guesthouse business. ✓
Statistics could be kept e.g. on popular dishes at the restaurant ✓
[Any TWO valid points]   (4)
                                                                                        [8]

QUESTION 8: PROGRAM DEVELOPMENT AND TESTING

8.1   Towels, sheets, tablecloths, costtowels, costsheets, costtablecloths, weekday, [✓✓✓ Any THREE
     appropriate data items]   (3)

8.2   Input : Towels, sheets, tablecloths, costtowels, costsheets, costtablecloths, weekday
     Processing : if weekday='Y' then ✓
              Cost=towels*costtowels+sheets*costshts+tablecloths*costtablecloths✓
           Else✓
            Cost=towels*costtowels+sheets*costshets+tablecloths*costtablecloths ✓
         If cost>=400 then ✓
           Cost=0.95*cost; ✓
     Output :   cost ✓   (7)

8.3   L
     8.3.1   GUI : Graphical User Interface ✓   (1)
     8.3.2   Focus on the needs of the user ✓
           Includes event-driven programming(keyboard, mouse click, joystick) ✓
           Consistency in use of buttons ✓
           Limit the use of error messages-rather prevent errors ✓
           Use sound, colour and animation sparingly ✓
           Arrange similar components together ✓
           Clear instructions must be given in labels ✓
           Users must experience satisfaction and a feeling of reaching their goals with the system ✓

(any 4) (4)

    8.3.3 **Delphi**
Edit boxes, Labels, DBeditboxs, DBnavigator ✓✓
This will allow capturing and saving data in a database table ✓✓
Radio Groups to choose between fixed set of options e.g. classification ✓✓
Spin Edits to specify hours worked. ✓✓
Checkboxes to indicate status of employee. ✓✓
[Any TWO relevant structures]

Java
ShowInputDialog : allows for a dialog box to appear for input ✓✓
ShowMessageDialog: a message dialog box appears✓✓ (4)

8.4   The linen (towels, sheets and table cloths) read must be of type integer; to check for weekday or weekend the type must be either Boolean or char. [✓✓ Any TWO valid types of validation] (2)

8.5

    8.5.1   Logic errors : the program executes completely but the results are not as expected. ✓
Syntax errors: Language rules are not correct e.g. semicolon missing. ✓ (2)
    8.5.2   Trace tables ✓ and Walkthroughs ✓ (2)

    [25]

SECTION E: INTEGRATED SCENARIO

QUESTION 9

9.1   Bookings and meetings could be noted down. Important notices not to be forget. Data can be captured and transferred to the computer system. Allows for portable computing applications etc. [✓✓ Any TWO valid benefits appropriate to this scenario] (2)

9.2   Data compatibility to computers.

The applications available or the data storing capacity or easy to operate.
Battery life.
Embedded applications
[✓✓ Any TWO appropriate criteria] (2)

9.3   Provide employees specific access codes with certain restrictions to prevent sensitive data to be available to all employees.
Not all employees can delete a financial transaction or a booking.
Set group profiles and file attributes
[✓✓ Any TWO appropriate suggestions aligned to this scenario] (2)

9.4   .mdb files (Access files) – can contain scripts
.zip files (Winzip) – used to hide infected files
.exe files (executable files)
.pif files
[✓✓ Any TWO file extensions that might normally be rejected by a firewall] (2)

9.5   He could use a search engine of South African origin. He could visit the government websites. He must carefully read the brochures or letters from SARS. Intelligent 'guess' such as www.sars.co.za [✓✓ Any TWO appropriate suggestions in the context of the question] (2)

9.6   He should invest in an accounting system. The budget and financial activities should be captured by this software. Software such as Pastel, Brilliant or similar would be possible solutions. Presentation graphics to present sales pitch to prospective backers.

[✓✓ Any TWO suitable suggestion aligned to the scenario] (2)

9.7

9.7.1 The unconditional is used when the programmer knows the number of repetitions that will be needed for a calculation or alike. ✓✓

The conditional loop is use when the programmer must use a condition to stop or continue a loop according to data that was provided as input by the user. The loop only stops or continues according to a certain condition concerning the data being processed. ✓✓ (4)

9.7.2 Pre-test – a certain test is made before a loop can continue. The loop may never be started. ✓
Post test – certain test is made after a loop has been processed. The loop will be processed at least once. ✓

While condition do	Repeat
Loop instructions✓	Loop instructions✓
End Loop ✓	Until condition met ✓

(6)

[22]

FINAL TOTAL: 180