Stanmore Secondary School

Department of Mathematics & Information Technology

First Controlled Test 2020

GRADE 12 - INFORMATION TECHNOLOGY

Time: 1 Hour   Max Marks: 60

Examiner: Mr S. Naidoo   Moderator: Mr AF Gabriel (Woodview Sec)

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Instructions

1. Answer all questions.

2. Only answers written in ink will be marked.

3. Write neatly and legibly.

4. This question paper consists of **six** questions in **FIVE** pages.

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Question One [5 Marks]

Different options are provided as possible answers for the following questions. Choose the correct answer and write only the letter (A – D) next to the question number (1.1 – 1.5) in the answer book, for example 1.6 C

1.1 Convergence is …
   A. Multiple devices running the exact same software
   B. Multiple devices having the same hardware failure
   C. Multiple devices technology and functions combines into one single device
   D. Multiple devices manufactured with defective hardware

1.2 How many times will the following loop be executed?

$$A \leftarrow 5$$

Repeat

 ….

 $A \leftarrow$ Power (A,0) – 2

Until A<=0

   A. Five Times
   B. Never
   C. One time
   D. Infinite times

1.3 ... uses a limited amount of faster media to speed up access to data and instructions stored on slower media.

    A. Core
    B. BUS
    C. RAM
    D. Cache

1.4 Study the following code:

```
Function findsum(num1,num2:integer):integer;

Var

    sum:integer;

Begin

    sum:= num1 + num2;

    Result:=sum;

End;
```

The variable sum is an example of:

    A. Actual Parameter
    B. Formal Parameter
    C. Global Variable
    D. Local Variable

1.5 Which ONE of the following refers to a data structure that is non-volatile?
    A. String
    B. One-Dimensional Array
    C. Two-Dimensional Array
    D. Text File

Question Two [15 marks]

> **Scenario**
>
> Mobile technologies are developing at a breakneck speed and it more exciting and capable devices will be available almost every month.

2.1 List three disadvantages of laptops as mobile technology. (3)

2.2 List three advantages of smart phones as mobile technology. (3)

2.3 List two differences between a laptop and a tablet. (2)

2.4 Differentiate between "Always On" and "Always Connected". (2)

2.5 *"Longer operation = Bigger Battery = Bigger device"*

   Explain this concept with regard to mobile technology's battery life and size of device. (1)

2.6 List two disadvantages of having an E-reader. (2)

2.7 List two issues except battery life that mobile technology has. (2)

Question Three [11 Marks]

> **Scenario**
>
> Some computers are faster than others. Most adverts flood us with technical specifications that are meant to give us a sense of how fast and powerful the machine is.

3.1 Explain the concept of a 4 core CPU. (1)

3.2 What is the cheapest and simplest way to improve performance? (1)

3.3 Explain how BUS speed can influence performance. (1)

3.4 A computer was purchased for home use. List 2 tasks that this computer can be used for. (2)

3.5 What does the abbreviation SOHO mean? (1)

3.6 List two tasks that a SOHO computer can be used for. (2)

3.7 Give an example of a power user. (1)

3.8 Explain the concept of cache. (2)

Question Four [16 Marks]

> **Scenario**
>
> One of the current buzzwords in computing is 'Cloud'.

4.1 What does it mean to store data 'in the cloud'? (2)

4.2 List three advantages of cloud computing. (3)

4.3. Explain what online storage is. (1)

4.4. Explain the difference between online storage and syncing files. (2)

4.5. Explain the abbreviation SaaS. (1)

4.6 Briefly differentiate between SaaS and the more traditional (older) software
    licensing models. (2)

4.7 Briefly discuss how cloud computing can affect hardware needs and
    a broadband connection. (2)

4.8. List 3 benefits of cloud computing. (3)

Question Five [6 Marks]

> **Scenario**
>
> **Security**
>
> We want to feel that our data is safe. We don't want other people to be able to steal or destroy our work, our identity or our money.

5.1 List two tips/good practices when using an anti-virus software. (2)

5.2 Explain what a firewall is? (1)

5.3 Why do you need a firewall although you have installed an anti-virus software? (1)

5.6 One of the best tools in computer security is common-sense.
    List 2 ways in which you can check if an email is a scam or not. (2)

Question Six - Software Development [7 Marks]

6. Study the following UML class diagram and answer the questions that follow

TLearner
-     fName : String   -   fYearmark : integer   -   fExammark : integer   -   fFinalmark : real
+   <<constructor>> Create (sName : String; iYMark : integer; iEmark : integer)   +   CalculateFinalMark (iYPerc : integer ; iEPerc : integer)   +   GetName : String   +   GetYearmark : integer   +   GetExammark : integer   +   GetFinalmark : real   +   ToString : String

6.1 Name 1 auxiliary method. (1)

6.2 List 2 private variables. (2)

6.3 Name 1 mutator method. (1)

6.4 Name 1 accessor method. (1)

6.5 Explain the difference between mutator and accessor method. (2)

FCT memo 2020

Question One

1.1   C ✓
1.2   C ✓
1.3   D ✓   5
1.4   D ✓
1.5   D ✓

Question TWO

2.1 Battery Life ✓
    Not always on ✓   } any three   3
    No built in cellular data
    Size

2.2 Always on ✓
    Always connected ✓
    Convergence device ✓
    Small size   } any three   3
    Built in sensors
    Longer batter life

2.3 Tablets cannot run full OS as compared to laptop ✓
    Tablets have a longer battery life as compared to laptops. ✓   2

2.4 Always on – device is always on, working in the background even if the screen is off ✓   2
    Always connected – Device is always connected to the internet. ✓

2.5 For a device to be on longer without recharging, it will require a bigger battery with will result in the device being of bigger size. ✓   1

2.6 Single purpose device ✓
    It is an extra item to carry around. ✓   2

2.7 Speed and availability of communication ✓   2
    Size

Question Three

3.1 Has 4 CPU on the same chip ✓ 1

3.2 Add more memory (RAM) ✓ 1

3.3 The speed at which data is moved between the CPU and other components especially RAM affects the performance of the PC. ✓ 1

3.4 Internet banking
    Limited office tasks
    Email and web browsing   } any two   2
    Social networking
    Video chatting
    Photos
    Entertainment

3.5 Small Office Home Office   1

3.6 Accounting and billing
    Database with clients, stock, etc   } any two   2
    Planning and scheduling

3.7. Hard – core gamers
    Architects
    Engineers   } any one   1
    Scientists
    Video editing professionals

3.8 Cache uses a limited amount of faster media to speed up access to data and instructions stored on slower media.   2

Question Four

4.1 Data is processed and stored somewhere on the internet.   2

4.2 Data can be retrieved from any location
    Processing power is available from any location
    Data and processing power is accessible no matter what device you using.   } any three   3
    Size of the storage is not fixed

4.3 It is when you back up all your data and info online and online access it when disaster strikes.   1

4.4 Online storage is meant for back up and syncing files means all devices have the same files   2

4.5 Software as a Service   1

4.6 SaaS is where you rent software and all the up to date features compared to traditional software is where you buy the licence once off to use the software and might not have the latest, up to date software.   2

4.7 Hardware – no need for a powerful PC, all processing is done online
    Broadband – need a fast, reliable connection to the internet.   2

4.8 Scalability
Ubiquity
Enables collaboration
Outsource maintenance and upgrades
Outsource installation and upgrades

} any three   3

Question Five

5.1 Install only one software
Set software to download definitions automatically
Set software to scan removable drives automatically
Set the software to scan entire PC at least once a week

} any two   2

5.2 It is either hardware or software that monitors which apps are using the communication link and with which port.

5.3 Anti virus software does not monitor which app is using the communication link to the internet.

5.6 Never click the link,
Contact the organisation telephonically
Go to organisation website to verify email

} any two   2

Question Six

6.1 ToString   1

6.2 fName
fYearmark
fExammark
fFinalmark

} any two   2

6.3 CalculateFinalMark   1

6.4 GetName
GetYearmark
GetExammark
GetFinalmark

} any one   1

6.5 Accessor does not change the value of variables and returns variables to interface
Mutator changes the value of the variables and does not return variables to interface.   2