

**INFORMATION TECHNOLOGY P2**

**GRADE 11**

**21 JUNE 2016**

**MEMORANDUM**

**QUESTION 1**

* 1. C 🗸🗸
  2. D 🗸🗸
  3. C 🗸🗸
  4. D 🗸🗸
  5. C 🗸🗸
  6. A 🗸🗸
  7. C 🗸🗸
  8. C 🗸🗸
  9. B 🗸🗸
  10. B 🗸🗸

**QUESTION 2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2.1 | When discussing the adverts, the term modular design was mentioned. | |  |  |
|  | 2.1.1 | What is Modular design |  | (2) |
|  |  | When a computer is designed with separate components✓, which makes upgrading and maintenance easier✓. |  |  |
|  | 2.1.2 | Give 2 advantages of a modular designed PC |  | (2) |
|  |  | When the user need to upgrade the PC it would easy as the parts are removable.✓  If components in the PC breaks or malfunctions it would be easy to replace✓  Any other acceptable answer. |  |  |
| 2.2 |  | Advert 1 comes with a DVDRW and advert 2 a CDRW. What is the difference between them |  | (2) |
|  |  | A DVDRW can read/write both CD’s and DVD’s✓ while a CDRW can only read/write to CD’s✓ |  |  |
| 2.3 |  | The ex-students notice that advert1 has an HDD hard drive while advert 2 has an SSD hard drive. Discuss the difference between the two hard drives. |  | (2) |
|  |  | An HDD hard drive is mechanical, it has moving parts while an SSD has no moving parts and is electronic storage.✓  SSD storage is faster than HDD✓  SSD’s are physically smaller than HDD’s  SSD’s usually have a smaller storage capacity than HDD’s  (any 2) |  |  |
| 2.4 | 2.4.1 | One of the ex-students has come across the term malware. Give 3 of the general classes of malware and explain each. |  | (6) |
|  |  | Virus✓ – malware that attaches itself to a file or executable program, enabling it to spread between computers.✓  Computer worm✓ – malware that exploits weaknesses in an application or operating system in order to spread.✓  Trojan✓ – is a program that is disguised with useful or desirable features.✓  Others: spyware and rootkit (accept with explanation) |  |  |
|  | 2.4.2 | Name 3ways in which you can reduce malware infection. |  | (3) |
|  |  | Use antivirus✓  Keep antivirus software up-to-date✓  Set firewall up for incoming and outgoing✓ |  |  |
| 2.5 |  | With the increase in load shedding, the ex-students are worried that the devices will be damaged if they are not properly shut down. Name one device that can prevent the damage to these devices. |  | (1) |
|  |  | UPS (uninterrupted power supply) |  |  |
| 2.6 | 2.6.1 | Give two ways of how human error can lead to loss of data |  | (2) |
|  |  | Accidently deleting files, formatting flash drives, not making regular backups, entering incorrect data in a program.  Any two acceptable answers✓✓ |  |  |
|  | 2.6.2 | Explain 3 ways in which human error can be reduced. |  | (3) |
|  |  | Automate processes by scheduling updates.✓ |  |  |
|  |  | Set string passwords✓ |  |  |
|  |  | Implement access rights.✓ |  |  |
|  |  | Any 3 suitable ways. |  |  |
| 2.7 |  | The computers will be connected to the internet, state 2 precautions when online |  | (2) |
|  |  | Any 2 suitable answers✓✓ |  |  |
|  |  |  | [25] |  |

**QUESTION 3**

|  |  |  |  |
| --- | --- | --- | --- |
| 3.1 |  | Networks form an integral part of any network.  Give a concise definition of a *computer network.*  A network is a collection of computers or other computing devices (such as smart phones) that are connected by some sort of communication media to facilitate sharing of software and resources. ✓ | (1) |
| 3.2 |  | A NIC is vital when connecting computers in a network. |  |
|  | 3.2.1 | Briefly explain the role performed by a NIC in terms of a network. | (1) |
|  |  | A NIC is used to encode/decode (‘convert’) the data so that the data can be transmitted over a specific medium. ✓ |  |
|  | 3.2.2 | How does a NIC for wireless network differ from a NIC for a cabled network? | (2) |
|  |  | A NIC in a wired or cabled network will need a port to connect to a cable. ✓ A NIC for a wireless network needs a small antenna that allows it to send and receive data using radio signals.✓ |  |
|  | 3.2.3 | The ex-students notice that NIC for the PC’s are advertised in 10Mbps/ 100Mbs and 1000Mbps.  Explain what these specifications refer to and why there seem to be three different specifications for the same item. | (2) |
|  |  | The Mbps refer to speed ✓and the reason there are different types of speed is for the different types of cabling.✓ |  |
| 3.3 |  | The ex-students are worried that by implementing a cabled network, the cables lying around may pose a safety problem.  Besides cabling what other way can they link the PC’s together? | (1) |
|  |  | Wireless connections✓ |  |
| 3.4 |  | A member of the ex-students society wants some clarity on WiFi and WiMAX. |  |
|  | 3.4.1 | What do WiFi and WiMax have in common? | (1) |
|  |  | They both allow wireless devices to communicate with one another✓ |  |
|  | 3.4.2 | What are the main two differences between these technologies? | (2) |
|  |  | WiMAX is an upgrade of WiFi technology and it allows wireless devices to communicate with one another over a wider area than WiFi. ✓  WIMAX is also more secure than WiFi.✓ |  |
| 3.5 | 3.5.1 | All types of networks have some form of protocol.  What is a network protocol? | (1) |
|  |  | Set of rules for encoding and decoding data for transmission across a network. ✓ |  |
|  | 3.5.2 | Explain what the following protocols are: SMPT, HTTP and VOIP | (3) |
|  |  | SMPT: Protocol used for sending mail✓  HTTP: defines how web pages are transferred across the internet✓  VOIP: allows telephone calls over LANS, WANS and internet.✓ |  |
|  | 3.5.3 | Differentiate between HTTP and HTTPS | (2) |
|  |  | Both are used to transfer text, images, video and other data for displaying as a web page in a web browser.✓ HTTPS includes security and encryption to protect the information communication process.✓ |  |
|  | 3.5.4 | Name the communications protocol is used to transfer large files between computers via networks such as the Internet? | (1) |
|  |  | FTP |  |
| 3.6 |  | The ex-students have notice that most cell phones are classified as smartphones. Explain to them what is a smartphone compared to a normal phone. | (2) |
|  |  | Smartphones are cell phones that include a mobile operating system designed for a mobile device✓  Smartphones have the ability to install and run third-party software or apps.✓  Smartphones allow for Internet connectivity and web browsing.  Any two acceptable answers |  |
| 3.7 |  | Name two operating systems that smartphones use. | (2) |
|  |  | Android✓ iOS✓  Any 2 suitable answers |  |
| 3.8 |  | The ex-students would like you set up email on the teachers phones as it would be easier to communicate. |  |
|  |  | Differentiate between ‘Notifications’ and ‘push technology’. | (2) |
|  |  | Notifications refers to an automated on screen message that informs you when an email is received✓.  Push Technology is when the server notifies the device that a new message has arrived and downloads it to the device.✓ |  |
| 3.9 |  | What is Blogging and Microblogging? | (2) |
|  |  | Blogging is when websites are often updated✓ with news and events while microblogging refers to posting short entries.✓ |  |

**QUESTION 4**

4.1)

1. Budget 🡨 Enter budget amount **🗸**
2. Case (budget) of **🗸**

0..2999 : output “you cannot afford an i-processor” **🗸**

3000..5000 : output “ i-3”

5000..8001 : output “i-5” **🗸**

8001..12000 : output “i-7”

Else output “not applicable” **🗸** (5)

4.2.1 (a)The algorithm will accept the data **🗸** but in determining the pay will result In a negative  
 wage **🗸** which does not make sense. (2)

(b)Runtime **🗸** (1)

4.2.2 (a) A logical error occurs when the program compiles successful without errors and also   
 produces output without crashing **🗸** , however does not produce the   
 expected/desired result.**🗸** (2)

(b) Correction for error Line 4:

Move line 4 to any position above the starting point of the loop**✓**.

Correction for error Line 7:

Change line 7 to: Pay **✓** Pay + (Number \* 100) 

OR

Change line 7 to: Pay Total \* 100

Move line 7 to outside the loop, between lines 8 and 9. (2) \\

4.3.1 No **🗸**

4.3.2 No **🗸**

4.3.3 Yes **🗸** (3)

4.4.1(a) edtTestMark (or any suitable name) **🗸**

(b) none **🗸**

(c) btnCalcAverage (or any suitable name) **🗸**

(d) button click **🗸**

(e) btnClear (or any suitable name) **🗸**

(f) button click **🗸** (6)

4.5 1 sum 🡨 0

2 num 🡨 input an integer

3 loopCounter 🡨 1

4 while loopCounter <= **🗸🗸**num

5 Begin loop

6 if num mod loopCounter> = 0

7 then if loopCounter mod 2 = 0 **🗸🗸**

Then sum 🡨 sum + loopCounter

8 loopCounter 🡨 loopCounter + 1 🗸🗸

9 end loop

10 display sum (4)

Due to there being three errors allocate two marks for either line 7 or 8

**Total = 25**

**QUESTION 5**

5.1 Process management is the task of making sure that each process gets enough CPU time and access to memory, storage **✓**and other hardware .so that it can work without interfering with, or being interfered with, by other processes. **✓** (2)

5.2 VirtualBox, Parallels, VM Player, etc. **✓✓ (any 2)** (2)

5.3.1 It is plugged into a PCI‑E expansion slot on the motherboard. **✓** (1)

5.3.2 Reduces the work load of the CPU, **✓** the computer responds faster when running  
 graphics software like video editing or games. **✓** (2)

5.4 Time consuming/ costly to recapture data. **✓** Loss of stock may occur if no record of books borrowed. **✓** Library will not be functional until the system is working.

**(Any 2 suitable responses)** (2)

5.5. A computer worm uses a weakness in an application or operating system to spread and can ‘reproduce’ itself within the network. **✓** Worms pose a threat to data in that they share your confidential files with others. **✓** (2)

5.6 Spyware such as keyloggers monitor your activities and collect personal information including passwords and account numbers **✓**and report them to other parties to either use this information directly or in order to gain access to your data. **✓** (2)

5.7 **( Any TWO valid responses) ✓✓**

* Accidentally deleting files or formatting a disk
* Not ensuring that regular backups take place
* Entering incorrect data in a program
* Losing or misplacing portable storage devices
* Allowing other unauthorised users to get access to data
* By not following basic security principles etc. (2)

5.8. Power problems can result in loss of data   
Hardware failure or damage can occur,  
Theft of hardware. **(Any 2) ✓✓** (2)

5.9. A full backup is a copy of all your data or files. **✓**   
Incremental –the backup software only copies over new files and files that have been changed since the last backup. **✓**  (2)

5.10 Verification refers to checking that data entered is correct or accurate -by checking against another source. **✓**

Data validation is to check that the data entered makes sense –for grade, cannot enter a number over 12 . **✓** (2)

5.11 Category – radio button**✓**

Check boxes, list boxes and other components where a user makes their choice by ‘clicking on’ or selecting an item from a set of possible options.   
**(Any 2)** **✓** (2)

5.12. Data Type, Format, Range and Presence checks **(Any 2) ✓✓** (2)

**Total = 25**