**INFORMATION TECHNOLOGY - MEMORANDUM FINAL EXAMINATION NOVMBER 2015 - GRADE 11 P2**

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

Question 2

**SECTION B: SYSTEMS TECHNOLOGIES AND HARDWARE**

2.1 One often hears the term “modular design”. Describe this concept. (2)

*Where the word modular represents*in sections*or*designed for easy change and expansion*, the term modular computer refers to a*[*multiprocessing*](http://www.webopedia.com/TERM/M/multiprocessing.html)*computer system where processing,*[*memory*](http://www.webopedia.com/TERM/M/memory.html)*, and*[*peripheral*](http://www.webopedia.com/TERM/P/peripheral.html)*units can be added or removed without disrupting its operation.*✓✓

2.2 Why is modular design so popular? (3)

*Maximize upgrade opportunities*✓

*Minimize the cost*✓

*Use only standardized components*✓

2.3 One **of the most important components is the motherboard.**

2.3.1 State the function of the motherboard. (1)

*It holds together many of the crucial components of a computer, including the central processing unit (CPU), memory and connectors for input and output devices.*✓

2.3.2 What is the term used to describe a communication channel on the motherboard. (1)

*Bus*✓

2.4 “**Cache refers to special high speed RAM.”**

2.4.1 Provide a suitable definition for Web Caching. (2)

*A****web cache****(or HTTP****cache****) is an information technology for the temporary storage (****caching****) of****web****documents, such as HTML pages and images, to reduce bandwidth usage, server load, and perceived lag.*✓✓

2.4.2 Explain how disk caching is different from Web Caching. (2)

***WEB CACHE****--*[*Web browsers*](https://simple.wikipedia.org/wiki/Web_browser)*and*[*web proxy servers*](https://simple.wikipedia.org/wiki/Proxy_server)*use caches to store previous responses from*[*web servers*](https://simple.wikipedia.org/wiki/Web_server)*, such as*[*web pages*](https://simple.wikipedia.org/wiki/Web_page)*. Web caches reduce the amount of information that needs to be transmitted over the network. Information previously stored in the cache can often be re-used. This reduces*[*bandwidth*](https://simple.wikipedia.org/wiki/Bandwidth)*and processing requirements of the web server, and helps to improve*[*responsiveness*](https://simple.wikipedia.org/w/index.php?title=Responsiveness&action=edit&redlink=1)*for users of the web*✓

***DISK CACHE****-- A portion of*[*RAM*](http://www.webopedia.com/TERM/R/RAM.html)*used to speed up*[*access*](http://www.webopedia.com/TERM/A/access.html)*to*[*data*](http://www.webopedia.com/TERM/D/data.html)*on a*[*disk*](http://www.webopedia.com/TERM/D/disk.html)*. The RAM can be part of the*[*disk drive*](http://www.webopedia.com/TERM/D/disk_drive.html)*itself (sometimes called a*[*hard disk*](http://www.webopedia.com/TERM/H/hard_disk.html)cache*or*buffer*) or it can be general-purpose RAM in the*[*computer*](http://www.webopedia.com/TERM/C/computer.html)*that is reserved for use by the disk drive (sometimes called a*[soft](http://www.webopedia.com/TERM/S/soft.html)disk cache*).*Hard diskcaches*are more effective, but they are also much more expensive, and therefore smaller.*✓

2.5 **The firmware represents the basic code to get the computer started.**

2.5.1 What is firmware? (1)

*permanent software programmed INTO PRIMARY MEMORY*✓

2.5.2 Where is firmware stored? (1)

*ROM*✓

2.6 “**Storage and Memory confuse me… Is there a difference”**

2.6.1 Explain clearly the difference between **storage** and **memory.** (4)

|  |  |
| --- | --- |
| ***Memory*** | ***Storage*** |
| *Electronic* | *Mechanical* |
| *Fast* | *Slow* |
| *Expensive per GB* | *Inexpensive per GB* |
| *Temporary (volatile)* | *Permanent (not volatile)* |

✓✓✓✓

2.6.2 Name TWO major differences between HDD and SSD. (2)

*SSD is much faster than HDD*✓

*SSD is much smaller in storage space than HDD*✓

2.6.3 Name the technology that flash drives and SSD make use of. (1)

*EEPROM – ROM that can be changed*✓

2.7.1 Which type of operating system is called the ‘Jellybean’? (1)

*Android*✓

2.7.2 Explain the difference between an interpreter and a compiler. (2)

*Compiler: The whole program is loaded into memory and executed as one  
Interpreter: The code is read line by line and executed line by line*

*The new device that needs to be installed must be able to run on the computer that it is upgrading*✓✓

2.7.3 Explain the concepts of “virtual memory “and “virtualisation”. (4)

*VIRTUAL MEMORY-This is imaginary memory stored on the hard drive which allows the operating system to fool the computer into thinking that there is more RAM available than there actually is.*✓✓

*In computing,***virtualization***means to create a virtual version of a device or resource, such as a server, storage device, network or even an operating system where the framework divides the resource into one or more execution environments.*✓✓

2.8.1 Explain GIGO with a suitable example? (2)

*Garbage in, Garbage out.*

*Invalid input in a program leads to invalid output.*

*If a program that calculates the average tets mark of learners allow marks larger than 100 or negative numbers the resulting average will be incorrect.*✓✓

2.8.2 What are the consequences for the owner of a stolen laptop? (2)

*Hardware has to be replaced* ✓

*Applications has to replaced or reinstalled*✓

*Confidential data may be lost*✓ - 2 only

2.8.3 What IT security risks do portable storage devices pose for companies (2)

*Transferring of malware to company pc’s*✓

*Running of key loggers and other malicious software*✓

*Stealing data from hard drives or network*✓2 only

2.8.4 How can power failure cause a loss of data? ` (2)

*Data in RAM is not transferred to storage*✓

*Corruption of data when writng to storage is interrupted*✓

*Power surges can cause damage to hardware*✓ 2 only

2.8.5 What crucial piece of equipment protects a network database’s against data corruption in case of a power failure? (2)

*UPS*✓✓

2.9 Define the following term referring to network vulnerability: (6)

2.9.1 Trojan

***Trojan:*** *A destructive program that masquerades as a benign application. Unlike viruses, Trojan horses do not replicate themselves but they can be just as destructive. Trojans can also create a backdoor that provides for unauthorised access to the computer.*✓✓

2.9.2 Rootkit

***Rootkit:*** *A rootkit is a type of malicious software that is activated each time your system boots up. Rootkits are difficult to detect because they are activated before your system's Operating System has completely booted up. Rootkits can install hidden applications, add hidden user accounts and intercept data from network connections.*✓✓

2.9.3 E-mail spoofing

***E-mail spoofing:****Forging an e-mail header to make it appear as if it came from somewhere or someone other than the actual source.*✓✓

2.10 Discuss the difference between a full backup and an incremental backup. (2)

***Full backup*** *A complete backup of all the data.*

***Incremental backup*** *After the first full backup only files that changed or new files are backed up.*✓✓

**QUESTION THREE:**

3.1 Explain to your dad what a WAP is. (1)

*Wireless access point*✓

* 1. Explain to him why he will need a WAP in this case. (1)

*This is the device that you will make use of to connect wirelessly to the network.*✓

3.3 ***Your mom constantly needs to visit new prospected clients, but unfortunately she always gets lost.***

3.3.1 Name one way in which she can use her Smartphone to assist her in finding her clients' locations. (1)

*GPS/ GOOGLE MAPS*✓

3.3.2 How does this technology work? (2)

*Satellites continually orbits the earth sending signals to devices that can use these signals to pin point destinations.*✓✓

3.4 Define the term ‘range’ in terms of signal strength. (2)

*This refers to how far the signal can reach without any obstructions.*✓✓

3.5 Explain to your dad the difference between Wi-Fi and WiMAX. (4)

*WiMAX is an upgrade to WiFi technology and can communicate over a larger area than Wi-Fi WiMAX also provides better security than WiFi.Wifi functions in a small area. WiMax can operate over kilometres*✓✓✓✓

3.6Name a web browser each for the following operating systems:

3.6.1 Android

* + 1. Blackberry

Android: Skyfire, Fennec etc.

BB: Bolt, U Zard✓✓

3.7 One browser has a unique feature called ‘night mode’. What is the advantage of this feature? (1)

***Opera Mini****-new night mode that's actually quite neat for browsing in dark or low-light environments.*✓

3.8 Name a browser that will function on a kindle. (1)

*FireFox, Maxthon, Dolphin* ✓

3.9 What does ‘Push Technology’ refer to? (1)

*The server notifies the device of a new message and downloads it to your device without any interaction from the user.*✓

3.10 Can you open any attachment on your mobile device? Motivate your answer. (2)

*Mobile devices consist of only some apps, thus not all the attachments will open on your device*.✓

3.11 Explain the term VidCast and how is it different from podcasting. (4)

* *A video clip designed to be viewed on a portable device. Also called a "vcast," "vodcast" and "videocast," a vidcast is the video counterpart of a podcast*✓
* *A podcast is a digital audio file (usually MP3 or AAC) made available for download on the internet.*✓
* *You can use applications as iTunes to download these podcasts.*✓
* *Radio stations make use of this so that their listeners can download any program that they have missed.*✓

3.12 Explain why it might be important to compress multimedia files. (2)

*They take a huge amount of the storage space available and it has a great impact in terms of sending or broadcasting of multimedia content.*✓✓

Total 25

**QUESTION FOUR**

4.1.1 A loop is a programming structure that allows statements to be repeated✓✓

4.1.2 for …loop✓

4.1.3 When the amount of data is known✓✓

4.2.1 Adjust size of buttons/labels/textfields

4.2.2 re-align the components

4.2.3 Keep to standard conventions and follow HCI principles {any 2}✓✓

4.3.1 Data needs to validated as it will be typed by user✓

combo-box , radio buttons or jList {any 2}✓✓

4.3.2 Used to initialize the attributes✓

Order() : Default constructor – used to give attributes default values

Orderr(tourRef,name, destination) – Parametrised constructor- used to initialize attributes with their Instantiated values ✓✓✓

4.3.3 setDestination () – should be receiving a parameter value✓✓

4.3.4 a) toString()✓

b) setDestination ()✓

c) Tour()✓

d) getDestination()✓

4.4.1 a) Count – is used to test for the factors of the number as it will also represent the loop counter✓✓

b) CountFact- Used to store the number of factors✓✓

4.4.2 countFact 🡨 0✓

4.4.3 a) num MOD Count =0✓✓

b) inc(CountFact) ✓

c) num ‘ is prime ‘✓

d) num, ‘ Is NOT prime’✓

**QUESTION five**

* 1. What does it mean when we say a website is static? (1)

*A static website consists of several pages, each a separate file. These pages show exactly the same information each time they are accessed by the user.*✓

* 1. What is the main difference between static and dynamic websites? (2)

*A dynamic website consists of pages created in such a way that they are generated in real time. Such websites may differ each time depending on the users and their saved preferences and settings.*

*Static websites appears to always be the same regardless of the user.✓✓*

5.3 The URL of a web page sometimes indicates that the page is dynamic when it contains various parameters after the filename.

* + 1. What are the parameters in the URL of a dynamic web page? (1)

*The parameters include the information that is given to the server so that the page that you see can be created dynamically.✓*

* 1. Give two advantages of dynamic websites over static web pages. (2)

*Can adapt to individual user needs and preferences.✓*

*It has more comprehensive, interactive feature.✓*

* 1. Briefly explain what an app is. (1)

*Apps are programs designed to run on mobile devices.✓*

* 1. Give two reasons why websites use apps in this context.

*Less data is transferred, which leads to faster reaction*

*Offers users a more user friendly interface*

*Users can automatically be notified when the information on the site has changed* ✓✓ only 2

(2)

* 1. Give two examples of websites that developed apps with which one can access the information on their websites. (2)

*News24, Facebook, etc.*✓✓

5.8 ***SSL is a protocol used to ensure the security of communications and transactions over the Internet***.

* + 1. How Does the SSL Certificate Create a Secure Connection? (2)

*Browser connects to a web server (website) secured with SSL (https). Browser requests that the server identify itself.Server sends a copy of its SSL Certificate, including the server’s public key.*

*Browser checks the certificate root against a list of trusted CAs (Certificate Authority) and that the certificate is unexpired, unrevoked, and that its common name is valid for the website that it is connecting to. If the browser trusts the certificate, it creates, encrypts, and sends back a symmetric session key using the server’s public key.*

*Server decrypts the symmetric session key using its private key and sends back an acknowledgement encrypted with the session key to start the encrypted session.*

*Server and Browser now encrypt all transmitted data with the session key.*✓✓ -2

* 1. ***Online banking is becoming more popular than ever***.
     1. List a few transactions that can be done online. (2)

*Funds transfers between the customer's linked accounts*

*Paying third parties, including bill payments*

*Loan applications and transactions*

*Credit card applications*✓✓

* + 1. Discuss the attacks that are done on online banking. (2)

*Attacks on online banking used today are based on deceiving the user to steal login data and valid PINs.* ✓

*Two well-known examples for those attacks are phishing and pharming. Cross-site scripting and key logger / Trojan horses can also be used to steal login information.*✓

* 1. Name four categories of online bookings sites. (4)

Air travel

Hotels and accommodation

Car rental

Entertainment.✓✓✓✓

* 1. ***E-learning can be explained as the use of ICT in education.***
     1. discuss the advantages and disadvantages of e-learning.

(open ended- acceptable answers)

* 1. Video conferencing is an extremely useful method of communication.

List at least one use of video conferencing in the following sectors: education and media.

In education✓✓

Students from diverse communities can explore, communicate, analyse and share information and ideas through two-way communication forums.

Guest lecturers can be brought into the classroom from other institutions.

In media

Journalists can participate in international press conferences from any location, without having to leave their offices.✓✓

* 1. List three prominent examples of social media and briefly explain the purpose of each one.

• Facebook is a popular free social networking website that allows registered users

to create profiles, upload photos and video, send messages and keep in touch with friends, family and colleagues.

• Twitter is a free microblogging service that allows registered members to

broadcast short posts called tweets. Twitter members can broadcast tweets and follow other users' tweets by using multiple platforms and devices.

• Google+ is Google's social networking project, designed to replicate the way

people interact offline more closely than is the case in other social networking services.

• Wikipedia is a free, open content online encyclopaedia created through the

collaborative effort of a community of users known as Wikipedians. Anyone registered on the site can create an article for publication; registration is not required to edit articles.

• LinkedIn is a social networking site designed specifically for the business

community. The goal of the site is to allow registered members to establish and document networks of people they know and trust professionally.

• Pinterest is a social curation website for sharing and categorizing images found online. Pinterest requires brief descriptions but the main focus of the site is visual.✓✓✓✓✓✓

* 1. A friend complains that when he watches a video on YouTube, it sometimes freezes. He gets a message saying that it’s "buffering".

Briefly explain what it means and what the likely cause of the problem is.

Buffering is the short waiting periods in the video while the next section is streamed. The most likely cause is a slow Internet connection.✓✓

* 1. What is live blog?

Live blogs is when a blog is posted as an event takes place, which means that users can see the event in real time and comment upon the event.

* 1. Explain what the term Video on-Demand (VoD) refers to?

Video on-Demand (VOD) and Audio and Video on-Demand (AVoD) are systems which allow users to view video content and listen to audio content when requested.

* 1. *VOD (Video-on-Demand) is usually a 'pay-as-you-watch' service. Briefly explain what it means.*

You select a video from a menu, pay and watch it. You often have a limited amount of time to finish watching your video.

These are suggested answers only.