**NOVEMBER EXAMINATIONS 2017**

**INFORMATION TECHNOLOGY**

**PAPER 02**

**GRADE 11**

**SUGGESTED ANSWERS**

**SECTION A**

1.1 A ✓

1.2 D ✓

* 1. C ✓

1.4 A ✓

1.5 D ✓

* 1. D ✓
  2. C ✓

1.8 A ✓

1.9 C ✓

1.10 B ✓

1.11 C ✓

1.12 D ✓

1.13 B ✓

1.14 B ✓

1.15 C ✓ **[15]**

**SECTION B**

**QUESTION TWO: SYSTEM TECHNOLOGIES**

* 1. The motherboard is considered as one of the most important components of a computer system:
     1. Motherboard ensures that all components of a computer can communicate with one another✓ (1)
     2. ROM chip ✓, CPU chip ✓, BIOS, RAM Chips, CMOS, Expansion Slots ***(Any TWO)*** (2)
     3. RAM is volatile✓, faster, used during normal operations of PC✓ while

ROM is non-volatile, slower, used at start-up✓ (3)

* + 1. – easy to upgrade✓

-can repair or replace component that is damaged or faulty✓

- easy to trouble shoot faulty components ✓ (3)

* + 1. USB ✓ , Wireless ✓ (2)
  1. The faster we can move data to allow components of the computer to communicate with one another, the better. USB (Universal Serial Bus) is the most popular and frequently used connection option.
     1. Thunderbolt ✓, Firewire ✓ (2)
     2. “plug n play” - is the name given to the technology that automates ✓ the

configuration process of a device before it can be used. ✓ (2)

* + 1. Non-volatile ✓, relatively slow access ✓, cost effective (2)
    2. Solid State Drive ✓ (1)
    3. Benefit of speed and storage of large amounts of data. ✓ Also electronic rather than mechanical ✓ (2)
    4. Cache memory is extremely fast memory that is built into a CPU, or located next to it on a separate chip. ✓ The CPU uses cache memory to store instructions that are repeatedly required to run programs, improving overall system speed. ✓ (2)
    5. - Web pages that have been recently accessed are stored locally on the hard

Drive ✓ so that they can be retrieved quicker the next time they are needed. ✓

-The next time you visit the website, the browser will check if anything on the site has changed and, if there are no changes, the website will load from the copy held in local storage. ✓

-This is known as web caching and is much faster than accessing the comparatively slow Internet. (3)

**[25]**

**QUESTION THREE: COMMUNICATION AND NETWORK TECHNOLOGIES**

* + 1. -fast and efficient communication ✓

-transfer of files ✓

-sharing of hardware and software (2)

* + - 1. NIC - every device in a network has to have a NIC to allow it to communicate in the network. ✓
* Used to convert the data so that it can be transmitted and to decode that data when it is received. ✓ (2)
  + - 1. -NIC is built into the motherboard
* Do not have to buy a NIC card to plug into the motherboard✓
* No issues of compatibility✓ (2)

3.2.1. -much larger bandwidth/faster transmission✓

-suitable for long distance ✓

-not much interference (2)

* + 1. LAN – local area network – used within a building or small area such as

such as school, university. ✓ (1)

* + 1. LAN – in a LAN the devices that are connected together by switches and or routers via a UTP cable. ✓

WLAN - This is a type of network where the data is not transmitted via cables but over the air through the use of wireless transmitters and receivers ✓ (2)

* + 1. Topology – physical layout of a network✓ (1)
    2. -easy to trouble shoot✓

-easy to add new a new user to the network✓ (2)

***(or other physical / logical advantages)***

* + 1. Asymmetric Digital Subscriber Line✓ (1)
    2. ADSL modem is a multipurpose device✓ that combines the functions of a switch, router, modem and WiFi access point ✓ (2)
  1. VPN – Virtual Private Network ✓– is a way users are able to login into a

network from a remote location via the internet with the same privacy and

security as a LAN. ✓ (2)

* + 1. VoIP – Voice over Internet Protocol✓ (1)
    2. Video-calling - It is when you make a call and you can see✓ the person while you are speaking to him or her over✓ (2)
    3. Mic✓, Speakers✓ or headphones. (2)
    4. Google Hangouts. ✓ (1)
  1. GPS✓ (1)

**[25]**

**QUESTION FOUR: DATA & INFORMATION MANAGEMENT**

4.1.1. database - A database can be described as a collection of data or facts

regarding a specific topic ✓ (1)

4.1.2. field - A single fact or the smallest unit of data can be viewed as a field. ✓ (1)

4.1.3. record - A collection of fields that includes the particulars of a specific entity

forms a record. ✓ (1)

4.1.4. table – is a collection of records. ✓ (1)

4.2.1. Admission\_Number ✓– no two learners can have the same admission number – therefore it is unique. ✓ (2)

4.2.2. Date\_of\_Birth ✓- Date/ Time✓ (2)

4.2.3. A cell number consists of 10 digits ✓ – cannot be read as a number. ✓ (2)

4.3. Data validation is one of the most important aspects of database design.

4.3.1. what fields each record should have ✓

what type of data each field should contain ✓

what the size of the field should be (where appropriate)

if there is going to be a primary key and what field should be used for the primary key. (2)

4.3.2. Data validity of about correctness and reasonableness of data while integrity

about completeness and soundness of data that complies to the intentions of

the creator of the data

Data validity – errors are more common – data integrity errors are less common ✓

Data validity – errors are caused by humans when entering data – data integrity errors are caused by bugs in the system. ✓ (2)

4.4. The role includes the development and design of database strategies, system monitoring and improving database performance and capacity, and planning for future expansion requirements.

They may also plan, co-ordinate and implement✓ security measures to safeguard the database. ✓ (2)

4.5 Define the ff terms:

4.5.1 Data Warehousing - a large store of data accumulated from a wide range✓of sources within a company and used to guide management decisions. ✓ (2)

4.5.2 Data Mining - the practice of examining large pre-existing database✓s in order to generate new information. ✓ (2)

**[20]**

**QUESTION FIVE: SOLUTION DEVELOPMENT**

5.1. Algorithm Wages

Enter hourly rate

Read rate

Enter number of hours ✓

Read hours

UIF 🡸 15.60

wage 🡸 rate \* hours ✓

if wage >= 1000 ✓

PAYE 🡸 wage \* 0.12✓

If wage < 1000✓

PAYE 🡸 wage \* 0.08✓

deductions 🡸 UIF + PAYE✓

finalWage 🡸 wage – deductions ✓

Display finalWage

End (8)

5.2.1. FOR Loop ✓ (1)

5.2.2. While / do...while ✓ . (1)

5.3.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| count | total | vat | finalCost | price | aveCost | Price not equal -1 | Display |
| 0 | 0 | 0 | 0 | 2500 | 4232.25 | True | Total- 14850 |
| 1 | 2500 | 2079 | 16929 | 2350 |  | True | Vat – 2079 |
| 2 | 4850 |  |  | 3500 |  | True | Final Cost - 16929 |
| 3 | 8350 |  |  | 6500 |  | True | Count - 4 |
| 4 | 14850 |  |  | -1 |  | False | AveCost – 4232.25 |
|  |  |  |  |  |  |  |  |
| ✓✓ | ✓✓ | ✓ | ✓ | ✓✓ |  | ✓✓ | ✓✓ |

***For columns carry 2 marks, allocate 1 mark if the column is partially correct.***

(12)

5.4.1.

a) -3 is not an acceptable value – logically you cannot repair -3 units. ✓

The program will calculate the wages but it will be a negative value. ✓ (2)

b) Runtime error ✓ (1)

c) Line 4 ✓– should be moved out of the loop – between lines 2 and 3. ✓

Line 7 is incorrect✓ : should read as follows : pay 🡸 total \* 100✓ (4)

**[29]**

**QUESTION SIX: INTEGRATED SCENARIO**

6.1. -To keep the public aware of latest events✓

-To promote the school✓

- To strengthen your credibility ✓

- To build interest (3)

6.2. -GUI must be appropriate✓

-Clear/ Consise Navigation✓

-Content must be up to date (2)

6.3.1. Search engine – is software that searches the web for web pages✓ related to a specific topic ✓ (2)

6.3.2. So that it features as one of the most popular sites – thus promoting the

school ✓ (1)

6.3.3. ISP – is a company✓ that provides access to the internet ✓for a monthly

fee (2)

6.3.4. router ✓ / modem ✓

(2)

6.3.5. - A firewall stops unauthorized programs on your computer from accessing the

network ✓ and stops computers on the network from accessing your device✓ (2)

6.4.1. - modern age of technology, we can access the internet anywhere and

wherever we go. ✓

- It is because there are smartphones, tablet PC’s, PDA’s and so on that we

can carry it everywhere and of course we can access the internet very easy✓

-Allows for mobility

-No need for cables (2)

6.4.2. -the speed of internet connection from wireless is not as fast as if you

connecting the internet using LAN modem✓ (1)

6.4.3. - wireless router✓

-wireless sender/receiver with antenna✓ (2)

6.5.1. Green-computing - is the use of computers and related resources in an environmentally responsible manner✓- includes the use of energy saving equipment✓ (2)

6.5.2. - switch of computers when not in use – save electricity✓

- Minimize the use of paper and properly recycle waste paper✓

-Dispose of e-waste according to regulations (2)

6.6.1. -dispose of e-waste responsibility – make use of recycling companies✓

-donate old equipment✓

-reuse parts (2)

6.6.2. –do not type in uppercase✓

-include a subject✓

-use appropriate language (2)

6.7.1. -his ID number may be used to open bank accounts✓, buy things, etc.

-apply for a passport✓

Describe TWO ways in which an identity thief can use this information. (2)

6.7.2. Instagram, Twitter etc. ✓ (1)

6.7.3. –update status in terms of latest results, share links and videos ✓ (1)

6.6.4. -nasty comments – deface school’s reputation ✓ (1)

6.8.1. RSI✓, CTS✓, CVS, headaches (2)

6.8.2. Ergonomics - the practice of designing equipment / furniture / etc. so that it

minimizes strain on the human body✓ – specific computer areas of interest include

ergonomic keyboards, mouse, chairs, etc. ✓ (2) **[35]**

**TOTAL = 150**