**GAUTENG PRELIM**

**MEMO**

**GRADE 12**

**SEPTEMBER 2019**

**INFORMATION TECHNOLOGY P2**

**MARKS:** **150**

**TIME:** **3 hours**

This memo consist of 11 pages.

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**SECTION A: SHORT QUESTIONS**

**Question 1**

1.1 Various options are provided as possible answers on the following questions. Choose the best answer and write only the letter (A-D) next to the question number (1.1.1–1.1.5) in the ANSWER BOOK, for example: 1.1.6 D.

|  |  |  |  |
| --- | --- | --- | --- |
|  | 1.1.1 | B🗸 |  |
|  | 1.1.2 | D🗸 |  |
|  | 1.1.3 | A🗸 |  |
|  | 1.1.4 | B🗸 |  |
|  | 1.1.5 | C🗸 | (5) |

1.2 Indicate whether the following statements are TRUE or FALSE. If the statement is FALSE, you must replace the underlined words so that the statement will be true. (You cannot simply add the word “NOT” to make the statement true).

|  |  |  |  |
| --- | --- | --- | --- |
|  | 1.2.1 | False, Whaling🗸  |  |
|  | 1.2.2 | False, Vlog 🗸 |  |
|  | 1.2.3 | True🗸  |  |
|  | 1.2.4 | True🗸 |  |
|  | 1.2.5 | False, Pop-up🗸  | (5) |

1.3 Give ONE word/term for each of the following descriptions. Write only the word/term
 next to the question number (1.3.1–1.3.5) in the ANSWER BOOK.

|  |  |  |  |
| --- | --- | --- | --- |
|  | 1.3.1 | ROM/EEPROM🗸 |  |
|  | 1.3.2 | Bluetooth🗸 |  |
|  | 1.3.3 | CMOS🗸 |  |
|  | 1.3.4 | Virtualisation🗸 |  |
|  | 1.3.5 | Search Engine Optimisation/SEO 🗸 | (5) |

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| **TOTAL SECTION A: 15** |

**SECTION B: SYSTEM TECHNOLOGIES**

**QUESTION 2**

SCENARIO:

You are part of a group of IT learners that got involved with various companies over the December holiday to assist them with managing their business more effectively.

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| 2.1 |  |  |
|  | 2.1.1 | CPU, Memory and Cache memory🗸 | (2) |
|  | 2.1.2 | Modular design🗸 | (1) |
| 2.2 | The graphics card has its own CPU & RAM🗸 that handles the processing of graphics 🗸 | (2) |
| 2.3 | 2.3.1 | It transports data between the different components on the Motherboard. 🗸 | (1) |
|  | 2.3.2 | Point-to-Point🗸 | (1) |
| 2.4 |  Working programs are stored on the SSD that has faster access speed🗸 and the HDD  has far more storage space 🗸 | (2) |
| 2.5 | 2.5.1 | Files are moved back and forth between the virtual memory on the hard drive and the RAM🗸 because the amount of RAM is insufficient.🗸 | (2) |
|  | 2.5.2 | Thrashing | (1) |
| 2.6 |  |  |
|  | 2.6.1 | Any TWO: 🗸🗸Process and task managementMemory managementInput and output managementDisk management | (2) |
|  | 2.6.2 | Each CPU can handle different tasks such as 🗸One core can handle email and music processing while the other core can handle processing of web browser and word processor. 🗸 (Any suitable examle) | (2) |
|  | 2.6.3 | ONE of the following:Biometric input 🗸through the use of your fingerprint with the scanner of the tablet Voice activation  Movement sensorFacial recognition | (1) |
| 2.7 |  |  |
|  | 2.7.1 | Data is stored on a different medium🗸 so that there is a duplicate set of data for in case something goes wrong with the computer. 🗸 | (2) |
|  | 2.7.2 | Googledrive, Dropbox, Onedrive (or any other correct answer) 🗸 | (1) |
|  | 2.7.3 | It is files that are not going to change or too be used 🗸that are removed from the main system to save space. 🗸 | (2) |
| 2.8 | Data can be entered by making use of a keybaord. |  |
|  | 2.8.1 | Takes longer to capture the data🗸Mistakes can be made while typing in data. 🗸 | (2) |
|  | 2.8.2 | Barcode scanner/NFC device🗸 | (1) |
| 2.9 |  |  |
|  | 2.9.1 | It creates a true replica🗸 of a digital sketch on the computer by placing (“printing”) layer upon layer 🗸with plastic or other suitable substance  | (2) |

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| **TOTAL SECTION B: 26** |

**SECTION C: COMMUNICATION AND NETWORK TECHNOLOGIES QUESTION 3**

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| 3.1 |  |  |
|  | 3.1.1 | Data is encoded so that it can be sent via a specific medium and data received is decoded. 🗸Makes it possible for computer and mobile devices to connect to a network🗸 | (2) |
|  | 3.1.2 |  Wireless Access point🗸 | (1) |
|  | 3.1.3 |  Radio waves🗸 | (1) |
|  | 3.1.4 |  No. 🗸 Because it is a small network area, 🗸 there is a device that perform the function of both the router and the switch.🗸**OR**Yes 🗸 If the business expands and adds more users, a switch will be necessary to regulate the traffic 🗸 and the router to connect to the Internet🗸 | (3) |
|  |  3.1.5 |  a) IP address🗸 b) Each address must be unique. 🗸 | (1)(1) |
| 3.2 |  |  |
|  | 3.2.1 | Access/connection to cabled technology is difficult🗸Data transfer speed can be slow🗸 | (2) |

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| --- | --- | --- |
| 3.3 |   |  |
|  |  3.3.1 |  It is software that the business rents instead of buying a license. 🗸  | (1) |
|  |  3.3.2 | The business always has the latest version🗸 of the software as long as the subscription fee is paid. 🗸 |  (2) |
|  |  3.3.3 |  Any TWO: 🗸🗸 Only available if there is an Internet connection.  As long as the company exists the programs will be available.  The company might not have a good security system in place  (Do not accept subscription fee if it was already mentioned in 3.3.2) |  (2) |
| 3.4 |   |  |
|  | 3.4.1 | Any TWO: 🗸🗸She always has access to the latest version of documents on any computer or mobile device in any locationThere will be no different versions of the same document.She has access to the documents even though she is offline. | (2) |
| 3.5 |   |  |
|  |  3.5.1 | Any TWO 🗸🗸There can be better stock management applied because there won’t be surplus stock that remains on the shelves and doesn’t sell.Patterns and tendencies can be picked up when there are more clients. For example in January there will be more parents that buy stationary for their children going back to school.Stock that is sold at more than one shop/branch than at another can be identified.  | (2) |
| 3.6 |  | The size and power 🗸 can quickly and effectively enlarge or decreased🗸 from the virtual server depending on the company’s needs. | (2) |

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| **TOTAL SECTION C: 22** |

**SECTION D: DATA AND INFORMATION MANAGEMENT**

**QUESTION 4**

While you are busy to computerise all the data you realise that the stock of the company is not monitored very effectively. You decide to help them to improve it.

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| 4.1 |  |  |   |
| 4.1.1 | A relational database contains more than one table which is connected via a relationship. 🗸 | (1) |
|  | 4.1.2 | A one-to-many relationship🗸 which means that one record in the tblDepartment table can be related to more than one record in the tblStockItems table🗸 | (2) |
|  | 4.1.3 | Normalisation refers to the process of organising a database in separate tables 🗸to avoid anomalies and the duplication of data 🗸 |  (2) |
|  | 4.1.3 | 1. Any ONE: 🗸

• All the other fields contain duplicate values• Only the DepartmentID field will contain unique values1. Zeroes at beginning of numbers will not be saved🗸
2. Text🗸
 | (1)(1)(1) |
| 4.2 |  |  |  |
|  | 4.2.1 | *Any THREE*🗸🗸🗸* Management
* Maintenance
* Admission policy
* Backup
* Installation of software
* Setup of software
 | (3) |
|  | 4.2.2 | So that you do not have to make changes to the program using the data as well when changes are being made to characteristics of the data.🗸 |  (1) |
|  | 4.2.3 | Physical independance 🗸Logical independance 🗸 | (2) |
|  | 4.2.4 | Protection of data against unauthorised access by users.. 🗸 | (1) |
|  | 4.2.5 | *Any TWO* 🗸🗸* Passwords
* Admission rights
* Data and encryption
 | (2) |
| 4.3 |  | Server DBMS: Simultaneously controls various connections🗸 to the database to execute the transactions. It will allow a large number of people to simultaneously🗸 to the database. | (2) |
|  | 4.3.1 | Any ONE: 🗸• Data is distributed over networks• Various servers/systems are used• Exposes security in various places | (1) |
|  | 4.3.2 | Any TWO: 🗸🗸• Faster performance / Fewer delays• Less ‘downtime’• If the connection is not disrupted, the database/data will not be corrupted | (2) |
|  | 4.3.3 | Partition:Each site control’s its own section of the database 🗸 They upload the data to a central database as a scheduled batch process.🗸 | (2) |

 **TOTAL SECTION D: 24**  **SECTION E: DATA AND INFORMATION MANAGEMENT** **QUESTION 5**You offered your services to help the owner by writing and improving a few computer programs.

|  |  |  |  |
| --- | --- | --- | --- |
| 5.1 |   |   |   |
|   | 5.1.1 | a) Syntaxb) Logicalc) Run-time | (3) |
| 5.2 |   |   |   |
|   | 5.2.1 | *Defensive programming*is when programming is done to prevent errors that will prevent the program from properly executing.  | (1) |
|   | 5.2.2 |   |   |
|   |   | a) Any TWO :• Validation of input• Use of control structures to test limits of input (only execute if conditions are met)• Use techniques for handling exceptions such as try…except/try…catch to eliminate conversion errors.  Accept any similar/suitable explanation | (2) |
| 5.3 |   |   |   |
|   | 5.3.1 | An array of type string | (1) |
|   | 5.3.2 | A string | (1) |
|   | 5.3.3 | A two-dimensional array | (1) |
|   | 5.3.4 | Any TWO • The number of arguments (actual parameters) must correlate with the  number of (formal) parameters• The type arguments (actual parameters) must match the type (formal)  parameters• The order of the (actual parameters) must correspond with the order of  the (formal) parameters | (2) |
| 5.4 |   |   |   |
|   | 5.4.1 | All the right private fields Right data types for fields  1 public access method 1 public amendment method   |     (4) |
| 5.5 |   |   |   |
|   | 5.5.1 | Constructor | (1) |
|   | 5.5.2 | Space is allocated in the memory to create the object in | (1) |
|   | 5.5.3 | It makes a connection between the external file **DATA JANUARY2017.** TXTand variable in the program **MY FILE** | (2) |
|   | 5.5.4 |  Move the file marker to the beginning of the file | (1) |
|   | 5.5.5 | iVisit: = iVisit + 1; | (1) |
|   | 5.5.6 | Give the variable a start value | (1) |
|  5.6 |   |  | (8) |

**SECTION F: INTEGRATED SCENARIO** **Question 6**An information session will be held with all the drivers to make them aware of online security and new emerging technologies.

|  |  |  |
| --- | --- | --- |
| 6.1 |   |   |
|   | 6.1.1 | Any Two: Fewer staff are neededIs available 24/7Saves timeHappier customersEnlarged customer base that can be servedFewer mistakes are made  | (2) |
|   | 6.1.2 | Any ONE: Complex programming is required for each type of business.Installation costs can be highIf the software does not work correctly, it can frustrate clientsIt cannot make decisions if it is not correctly programmedCannot remember previous conversations. | (1) |
|   | 6.1.3 | SQL  | (1) |
| 6.2 |   |   |
|   | 6.2.1 | Chip  and the reader  | (2) |
|   | 6.2.2 | Any Two: Name of the worker to whom the device is assignedAddress of the ownerBirth date | (2)  |
|   | 6.2.3 | The chip does nothing before it enters the electromagnetic field of the reader  . The chip is generating power from the magnetic field and then use the power to communicate with the reader.  |  (2) |
| 6.3 |   |   |
|   | 6.3.1 | Possible weak spots in the company's software. | (1) |
|   | 6.3.2 | Computer worma) Harmful software that spreads itself across a network  without that someone  used an infected program. b) TrojanHarmful program that disguised itself as a useful program  , designed to construct damage . |  (2)  (2) |
|   | 6.3.3 | a) Spammingb) Online databases c) By looking for e-mail addresses on websites  | (1) (2) |
| 6.4 |   |   |
|   | 6.4.1 | This is an encryption protocol  that encrypt data that is sent over the internet.  | (2) |
|  | 6.4.2 |  a)  It is an electronic document which contains a digitial signature and a public key  to confirm the identity of an organisation..b)  Any TWOOwner's public keyOwner's nameExpiration date of the public keyName of the issuerSerial number of the digital certificateDigital signature of the issuerc) Any ONEThe lock will be green without a cross The address will begin with https | (2)(2)(1) |
|   |   |  |  |
| 6.5 |   |   |
|   | 6.5.1 | Intranet is an organization's private network  | (1) |
|   | 6.5.2 | Users must enter a user name and a password to login to receive.  | (1) |
| 6.6 |   |   |
|   | 6.6.1 |  Any ONE: Use a legitimate company to get rid of the computers in the right way/E-Cycling.Donate computers to needy schools. | (1) |
|   | 6.6.2 |  Any ONE: Print documents back to back on the paperPrint 2 pages on one(only acceptable answers which refer to printer settings to use paper reduce) | (1) |
| 6.7 |   |   |
|   | 6.7.1 | It is an online workshop where users in remote locations can attend the workshop | (1) |
|   | 6.7.2 |  Any ONE: Low financial expenses – accommodation costs, transportation, etc.Workers do not have for long periods away from work. | (1) |
| 6.8 |   |   |
|   | 6.8.1 | Dynamic websites are generated in real time and differs from user to userA static website displays the same information to each user every time.  |  (2) |
|   | 6.8.2 | SEO – Search engine optimization  | (1) |

 **TOTAL SECTION F: 33****GRAND TOTAL: 150** |