



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

INFORMATION TECHNOLOGY P2
NOVEMBER 2019
MARKING GUIDELINES

MARKS: 150

*Approved
by
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2019/11/29*

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29/11/2019*

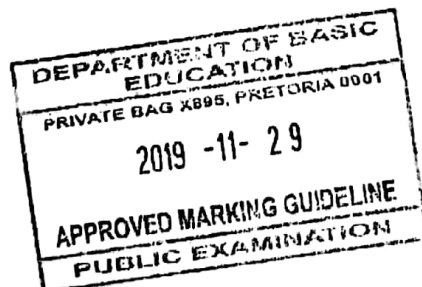
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UMALUSI
2019/11/29*

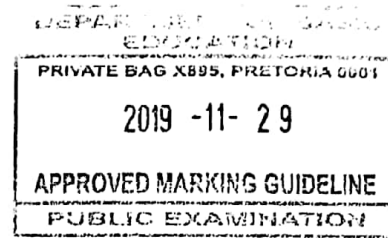
These marking guidelines consist of 15 pages.

DEPARTMENT OF BASIC
EDUCATION
PRIVATE BAG X895, PRETORIA 0001
2019 -11- 29
APPROVED MARKING GUIDELINE
PUBLIC EXAMINATION

SECTION A: SHORT QUESTIONS**QUESTION 1**

| | | | | |
|-----|--------|----------|--------------------|-----|
| 1.1 | 1.1.1 | D ✓ | | (1) |
| | 1.1.2 | B ✓ | | (1) |
| | 1.1.3 | C ✓ | | (1) |
| | 1.1.4 | A or D ✓ | | (1) |
| | 1.1.5 | C ✓ | | (1) |
| 1.2 | 1.2.1 | J ✓ | CSS | (1) |
| | 1.2.2 | F ✓ | Driver | (1) |
| | 1.2.3 | D ✓ | Topology | (1) |
| | 1.2.4 | N ✓ | Firewall | (1) |
| | 1.2.5 | K ✓ | Incremental backup | (1) |
| | 1.2.6 | A ✓ | Client | (1) |
| | 1.2.7 | R ✓ | DBA | (1) |
| | 1.2.8 | I ✓ | Computer worm | (1) |
| | 1.2.9 | B ✓ | Attenuation | (1) |
| | 1.2.10 | C ✓ | AUP | (1) |

TOTAL SECTION A: 15

SECTION B: SYSTEM TECHNOLOGIES**QUESTION 2**

- 2.1.1 8/ 2 x 4 GB ✓ (1)
- 2.1.2 HDD ✓ (2)
- RPM/ spinning disk/ moving parts/ rotation speed. ✓ (2)
- 2.1.3 1500 - 1536 GB / gigabytes ✓ (1)
- 2.2.1 Fetch ✓ instructions and data from memory (RAM).
Decode ✓ the instructions. (2)
- 2.2.2 Programs are split into smaller tasks called threads. ✓
Threads can be run simultaneously as if they are separate independent programs. ✓ (2)
- 2.3.1 *Any TWO:* ✓✓ (2)
- Speed of processing cores/ processing power/ clock speed.
 - Number of processing cores/ pipelining.
 - Amount of memory/ dedicated memory.
 - Type of RAM
 - GPU Cache
 - The speed of its communication with the motherboard/
Whether it is installed into a PCI-Express x 8 or PCI Express x 16 slot.
- 2.3.2 The built-in graphics adapter is used when performing tasks that don't require intense graphics processing ✓ to conserve battery power. ✓
When programs are executed that require more intense graphics processing, the laptop switches over to use the graphics card.
- ANY TWO Concepts*
- Improved graphics processing
 - Conserve battery power
 - Decrease the load of the CPU
 - Cannot Add/Upgrade the graphics card in the laptop
- 2.4.1 Power On Self Test ✓ (1)
- 2.4.2 POST checks/tests that all important hardware (RAM, HDD, etc.) is working ✓ (1)
- 2.5.1 Separate technologies and functions are combined into a single multi-purpose device. ✓ (1)
- 2.5.2 They can emulate/ test different smartphones/OS/platforms on a computer. ✓ (1)

2.6 Any TWO: ✓✓

- Close unnecessary programs to free up memory.
- Add more RAM to your computer.
- Ensure that you run a 64-bit operating system. Otherwise you can't use more than 4 GB.
- Replace with a faster storage (SSD). (2)
- The use of the cloud/server for storage/processing

2.7.1 To connect/house the CPU. ✓ (1)

2.7.2 Hardware can be added or removed while the computer is on. ✓ (1)

2.8.1 Any TWO: ✓✓

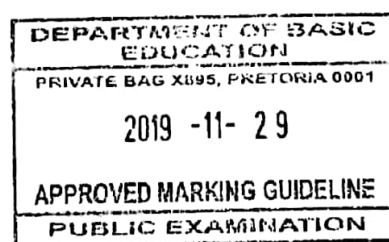
- Limited features / full version subject to time-limit.
- License must be bought to use full version.
- Available as a trial version/ try before buy (2)

2.8.2 (a) A regular (usually monthly) subscription fee is paid to use the software/ rented software. ✓ (1)

(b) Any ONE: ✓

- User always gets the latest version of the software.
- Only pay for what you use/ scalability of software
- Processed in another place like cloud/ server/ another location
- Saves storage space/ no need to install on hard drive
- No need for backups
- Accessibility on different devices/ locations (1)

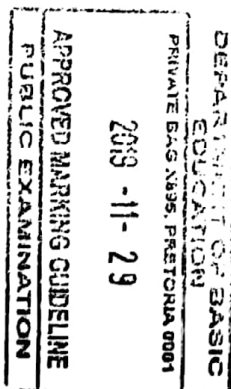
2.9 The scattering/ spreading of parts of a file ✓ to several sectors on the disk which slows down the disk's data access speed. (1)



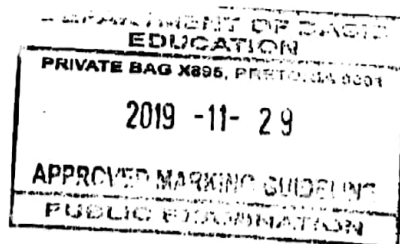
TOTAL SECTION B: 25

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

- 3.1 3.1.1 UTP / STP/ Ethernet cable/ Fibre ✓ (1)
- 3.1.2 The router directs/redirects/sends data over a network ✓ and chooses the best route to the destination ✓
- Concepts
- Transferring data between networks/ Internet
 - Finding the correct destination/redirecting (2)
- 3.2 3.2.1 *Any TWO:* ✓✓
- Easy to set up a wireless network
 - It is easy to add new / more devices.
 - Lower setup cost.
 - Increased mobility/ Provides flexible layout to users of wireless/mobile devices.
 - Provides a connection where cabling is not possible.
- Any answer related to no cables needed (2)
- 3.2.2 It is a sender and receiver with an antenna ✓ to send and/or receive radio waves. ✓
- Any TWO* concepts
- Connection to the Internet/network/wifi
 - Send and receive signals
 - Uses radio waves (2)
- 3.3 3.3.1 Gaining access to and using someone else's Internet connection unlawfully/ without permission. ✓ (1)
- 3.3.2 *Any TWO:* ✓✓
- Don't keep the default password – replace it with a good original password.
 - Change the password on a regular basis/ good password policy
 - Don't leave your Wi-Fi connection open – secure it with a password/ use a password
 - Limit the amount of data/devices/list of users
 - Make the hotspot invisible
 - Verification of the Mac address
 - Limit the range
 - Switch off when not in use (2)



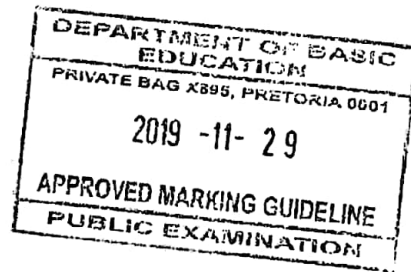
- 3.4 3.4.1 The website uses the saved preferences of a user to generate the site/ It will differ for every user/ This personalizes the user experience of your business. ✓
Interactivity ✓
Easy updates ✓
- Any 3 concepts
- Personalisation/ Differs for all users
 - Generated on the server
 - Based on parameters
 - Interactivity
 - Easy to manage content (3)
- 3.4.2 Make use of search engine optimisation(SEO) (1)
- 3.4.3(a) A set of rules ✓ for encoding and decoding of data for transfer ✓ (2)
- 3.4.3(b) It is a secure ✓ protocol for transactions (1)
- 3.5 3.5.1 PAN: has a range of a few metres/ limited/ small range ✓ (1)
- 3.5.2 VPN: virtual private network – uses the Internet / public network ✓ ,
Sign in with same privacy/ same security as a LAN ✓ (2)
- 3.6 3.6.1 Web application ✓ with functions and properties of traditional applications / software. ✓ (2)
- 3.6.2 Any ONE: ✓
- Google Docs
 - Microsoft Office Live
 - Office 365
 - Microsoft Office 365 (1)
- 3.7 Any TWO: ✓✓
- Ease of use/ convenience
 - Accessibility
 - Marketing of business by app stores
 - Notifications
 - Using extra sensors/ functions/ properties in mobile device (2)
- 3.8 3.8.1 Processing, where the physical location ✓ of objects /devices / persons is used. (1)
- 3.8.2 GPS ✓ (1)



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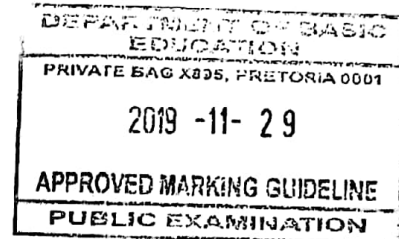
- 3.9 3.9.1 A podcast is an audio file/recording ✓ available on the internet/network for download ✓ (2)
- 3.9.2 Any ONE: ✓
- Real-time delivery of media content to a receiving device.
 - Playing a file from an online source where the file is not permanently saved on the receiving device. (1)

TOTAL SECTION C: 30



SECTION D: DATA AND INFORMATION MANAGEMENT**QUESTION 4**

- 4.1 Value must be unique/ no duplicates. ✓ (1)
- 4.2 Range check/ Validation rule ✓ (1)
- 4.3 4.3.1 ClientSAID and ClientSAID_Ref ✓ (1)
- 4.3.2 One-to-Many relationship ✓
On the One side: tblClients table
On the Many side: tblOrders table ✓ (1)

**Concepts**

- Correct type of relationship
 - Correct table indicated for one and for many side (2)
- 4.4 Adding the ClientAge field will result in data redundancy as the age can be derived from the ID field. ✓ (1)
- 4.5 Desktop DBMS ✓
Desktop DBMS will be sufficient as the business is small and operates from a single building. ✓

OR

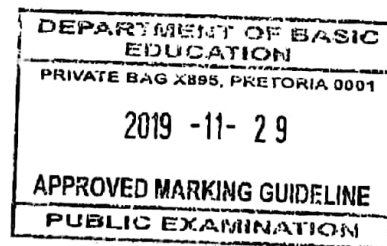
Server DBMS

Server DBMS will be more scalable/better accessibility.

Learner suggest desktop/server DBMS with suitable motivation for two marks (2)

- 4.6 4.6.1 Run-time error ✓ (1)
- 4.6.2 Referential integrity/ relational tables ✓ (1)
- 4.7 Keeping identical copies ✓ of a database (1)
- 4.8 Any TWO: ✓✓
- Use different passwords for different accounts.
 - Make passwords long in length.
 - Avoid using words that can be found in a dictionary.
 - Avoid using personal information about yourself or your family.
 - Change passwords on a regular basis.
 - Include a combination of special characters, uppercase and lowercase characters and numbers.
 - Avoid keyboard patterns (2)

- 4.9 The capturing of private/ unrelated information ✓ without the users' knowledge. ✓ (2)
- 4.10 The practice of examining large datasets in existing databases (and data warehouses) in order to generate new information/finding patterns/trends ✓ in data. (1)
- 4.11 Keeps track of / records ✓ changes ✓ in the database
- OR
- Who made the changes.
When the changes were made. (2)
- 4.12 When a record is open for editing / inserting, the record is flagged as 'in use' ✓
No other entity can make changes to that specific record until 'in use' flag/lock is removed. ✓ (2)
- TOTAL SECTION D: 20**



SECTION E: SOLUTION DEVELOPMENT**QUESTION 5**

5.1

5.1.1 String/ Text ✓

(1)

5.1.2 Integer/ Number ✓

(1)

5.2

5.2.1 Any ONE: ✓
NOT((10 > 5.0) OR (False))
NOT(True OR False)The final answer
False ✓

(2)

5.2.2 Any ONE: ✓
(False = NOT True) AND (5.0 = 10 / 2)
True AND TrueThe final answer
True ✓

(2)

5.3

5.3.1 2 ✓

(1)

5.3.2 5 times ✓

(1)

5.3.3 4 ✓✓ (the contents of the loop has not been executed)

(2)

5.4

Minimum: 5 ✓
Maximum: 12 ✓

(2)

5.5

Ceil() ✓

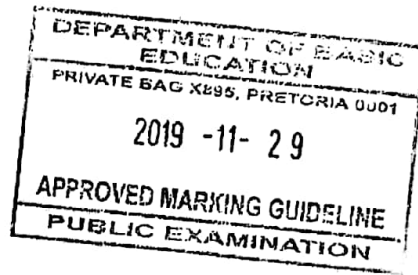
(1)

5.6

Any ONE: ✓

- Every single element needs to be compared / checked.
- In large datasets this can take a long time to perform.

(1)



5.7

```
1 | Display 'Please enter a string of digits'
2 | sInput ← input
3 | Loop i from 1 to length(sInput) ✓
4 |     sLine ← '' ✓
5 |     n ← sInput[i] ✓
6 |     Loop j from 1 to n ✓
7 |         sLine ← sLine + '*' ✓
8 |     Display sLine ✓
```

Concepts

Correct outer loop (1)

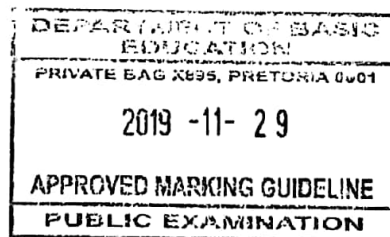
Initialize output variable before inner loop (1)

Inner loop (1) from 1 to character at outer loop position (1)

Add '*' to output variable (1) in inner loop

Display output variable (1)

TOTAL SECTION E: (6)
20



SECTION F: INTEGRATED SCENARIO**QUESTION 6**

6.1 6.1.1 A *mobile office* refers to a situation where you can carry/have with your portable tools essential for your business and the communication equipment ✓ that makes you reachable✓.

Concepts

- A description of mobility
- Office equipment (2)

6.1.2 Any ONE: ✓

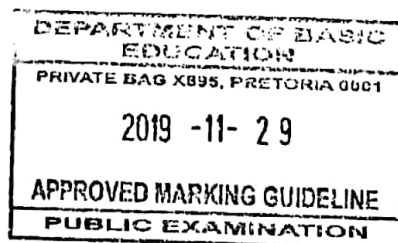
- Can work from anywhere
- A freelance worker avoids the expense of paying rent
- Resources and equipment are always on hand
- Working hours not dependant on access to office (1)

6.2

6.2.1 Cloud / Internet / Cyberspace/ Web✓ (1)

6.2.2 Any TWO correct examples of cloud storage services: ✓✓

- Google Drive
- DropBox
- OneDrive
- MediaFire
- MEGA
- iCloud
- NextCloud
- SkyDrive



(2)

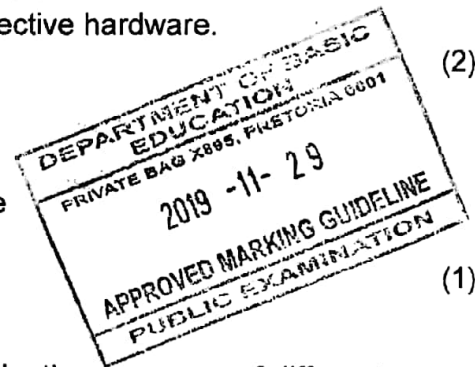
6.2.3 Any TWO: ✓✓

- Image files
- Video files
- Sound files
- Text
- Media file (2)

6.2.4 Any ONE: ✓

- Media platform for professionals with the same interest
- Create a work/ experience profile/ job search
- Marketing platform for professionals (1)

- 6.2.5 *Any TWO: ✓✓*
- Do not provide personal/their details such as cell phone numbers or ID/ Do not provide passwords/Social engineering
 - Enable privacy settings
 - Disable share location settings/whereabouts
 - Block unwanted users
 - Disable cookies
 - Limit third party applications
 - Do not befriend strangers
- (2)
- 6.3 The process of getting two or more sets of data across multiple devices/ locations ✓ updated with the latest/same versions ✓ of the data. (2)
- 6.4
- 6.4.1 *Any TWO: ✓✓*
- Easy to upgrade outdated hardware.
 - Easy to repair/replace broken/defective hardware.
 - Allows for customisation
- (2)
- 6.4.2 *Any ONE: ✓*
- Webcam/ camera/ smartphone
 - Speakers/ ear phone/ head phone
 - Microphone
 - Wireless headset
- (1)
- 6.5
- 6.5.1 Distributed computing is a system whereby the resources of different computers are shared/combined✓ and used at the same time to solve a single problem✓.
- Concepts
- More than one computer
 - Perform a specific/one task
- (2)
- 6.5.2 By downloading and installing software on their computers✓, which will automatically start working on the project when their computers are idle✓.
- Any TWO concepts✓✓*
- Give permission for the use of your computer
 - Provide/ share processing power
 - Computer is idle/ not in use
 - Install the appropriate software on their computers
- (2)
- 6.6
- 6.6.1 Artificial Intelligence✓ (1)
- 6.6.2 Since the developer makes use of a knowledge base ✓ there are a fixed number/possible outcomes/answers ✓ for each question or criterion.



(2)

6.7

6.7.1(a) *Any TWO: ✓✓*

- Anti-malware products/ Antivirus
- Operating system/ System software
- Firewall
- Firmware/ BIOS
- Web browser
- Product specific updates

(2)

6.7.1(b) Anti-malware/ Antivirus products: to allow for newer forms of malware to be detected ✓
All other software: malware exploits bugs or weaknesses in the security of software. ✓

(2)

6.7.2 Malware that locks or encrypts data/devices ✓ until a ransom is paid ✓.

Concepts

- Malware makes data/devices unavailable / unreadable.
- Ransom/Money must be paid to make data accessible again or decrypt data.

(2)

6.8

6.8.1 An attack that makes a web site unavailable ✓ by using thousands of computers/botnet to request data from the site at the same time/overloading the system. ✓

(2)

6.8.2 Script kiddie ✓

(1)

6.9

6.9.1 *Any ONE: ✓*

Device that uses a battery to supply power.

Device used in the event of a power failure/problem to supply power.

(1)

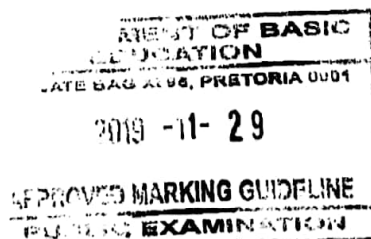
6.9.2 *Any ONE: ✓*

- Helps to protect the computer/storage devices against power surges and spikes.
- Keeps the computer on to allow the user to save data/ shut down the computer.

(1)

6.9.3 Lossy ✓

(1)



6.10

6.10.1 Digital rights management ✓ (1)

6.10.2 Any ONE: ✓

- BitTorrent/ Torrent/ Utorrent
- FTP

(1)

6.11

6.11.1 Any TWO: ✓✓

- Turn off radio wave transferring and receiving devices such as Bluetooth, GPS, Wi-Fi, etc.
- Turn on battery-saving mode.
- Disable sync functionalities.
- Limit background activity.
- Close open apps not in use (multitasking).
- Turn down screen brightness.
- Avoid playing media or video games on smartphones, as it drains battery rapidly.
- Carry a battery pack.

(2)

6.11.2 Any ONE: ✓

- An Internet connection is required.
- Both users need to utilise the same software in order to communicate using VoIP.
- Credits need to be purchased in order to call telephones that are not on the Internet.
- VoIP can transfer a lot of data, especially for video calls, which can make it expensive or use up data caps quickly.
- Call quality is easily negatively affected due to slow or poor quality Internet connections.

(1)

TOTAL SECTION F: 40
GRAND TOTAL: 150

