



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

INFORMATION TECHNOLOGY P2

FEBRUARY/MARCH 2018

MARKING GUIDELINES

MARKS: 150

These marking guidelines consist of 13 pages.

SECTION A: SHORT QUESTIONS**QUESTION 1**

1.1	1.1.1	C ✓	(1)
	1.1.2	B ✓	(1)
	1.1.3	D ✓	(1)
	1.1.4	D ✓	(1)
	1.1.5	C ✓	(1)
1.2	1.2.1	Utilities ✓	(1)
	1.2.2	POP3 ✓	(1)
	1.2.3	SEO/Search Engine Optimisation ✓	(1)
	1.2.4	BitTorrent ✓	(1)
	1.2.5	Virtual office ✓	(1)
	1.2.6	POS/Point of Sale system ✓	(1)
	1.2.7	Composite (primary) key ✓	(1)
	1.2.8	ADSL ✓	(1)
	1.2.9	Lossy compression ✓	(1)
	1.2.10	DNS/Domain Name system ✓	(1)

TOTAL SECTION A: 15

SECTION B: SYSTEMS TECHNOLOGIES**QUESTION 2**

- 2.1
- Ensures that all the components of the computer can communicate with one another ✓
 - Distributes power to the parts that connect to it. ✓ (2)
- 2.2
- Any ONE ✓
- Video cards
 - LAN cards
 - Sound cards (1)
- 2.3
- 2.3.1 Firmware ✓ (1)
- 2.3.2 Flashing ✓ (1)
- 2.4
- 2.4.1 Built in to the motherboard ✓ (1)
- 2.4.2
- Built-in, will be used for normal tasks/use less power and battery life. ✓
 - When using programs that require good graphics, the laptop will switch over to the video card. ✓ (2)
- 2.5
- 2.5.1 Caching is a method to compensate for loss of efficiency/bottleneck ✓ when a faster medium tries to communicate with a slower medium ✓ (2)
- 2.5.2 The operating system has a certain amount of RAM ✓ that keeps data that was recently used. ✓ (2)
- 2.6
- 2.6.1(a) Multitasking ✓ (1)
- 2.6.1(b) Multi-threading ✓ (1)
- 2.6.2 It ensures that the tasks are spread between cores efficiently ✓ (multiprocessing) and that each core is working on more than one thread/process at the same period of time ✓ (multitasking). (2)
- 2.7
- 2.7.1 B – Java ✓ (1)
- 2.7.2 D – Delphi ✓ (1)
- 2.7.3 A – Assembler code ✓ (1)
- 2.7.4 C – Machine code ✓ (1)

- 2.8 *Cloud applications:*
Software which is available to be run from the Internet ✓ where most of the processing is done on the cloud by one of the many servers. ✓ (2)
- 2.9. Allows the user to access the latest version of the files ✓ on different devices. ✓ (2)
- TOTAL SECTION B: 24**

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

- 3.1 WAN ✓ It covers a large geographical area ✓
OR
 WAN covers a city or country (2)
- 3.2 3.2.1 Intranet: An organisation's private network
 Extranet: When an organisation's Intranet is made available to other users outside the organisation.
 Internet: A worldwide computer network (3)
- 3.2.2 Extranet: Participants/teacher/regional organiser (1)
- 3.3 3.3.1 *Any ONE:* ✓
 • Sophisticated security
 • More suitable for large number of computers
 • Improved management (1)
- 3.3.2 *Any TWO* ✓✓
 • Thin client relies on the server for data storage and processing
 • Thin client does not contain a hard disk
 • Thin client is cheaper (2)
- 3.4 3.4.1 *Any TWO* ✓✓
 • EMI
 • Crosstalk
 • Eavesdropping (2)
- 3.4.2 Use a repeater ✓
 Also accept: switch (1)
- 3.5 *Any ONE:* ✓
 • Upgrade to a faster switch, modem or router.
 • Upgrade the NIC
 • Use a managed switch/intelligent switch (1)
- 3.6 Yes. If a computer had a wired and wireless adapter ✓ (1)
- 3.7 3.7.1 *Any TWO* ✓✓
 • A public service has limited security
 • Uses bandwidth/data cap
 • Need an Internet connection to be accessible (2)
- 3.7.2 Google Docs ✓ (1)

- 3.7.3 *Any ONE* ✓
 • Bluetooth
 • Wi-Fi
 • LAN cable (1)
- 3.7.4 The user is provided with a secure connection ✓ to the office network server over a public network like the Internet. ✓ (2)
- 3.8 3.8.1 Used to monitor, track and collect information without the knowledge of the user. ✓ (1)
- 3.8.2 *Any TWO* ✓✓
 • Keep your anti-virus software's definitions up to date (anti-virus software often includes anti-spyware software).
 • Be careful when installing software from the Internet (and from other dubious sources).
 • Do not click on links in pop-ups.
 • Do not open unknown programs or email attachments
 • Keep informed –stay abreast of media reports and warnings
 • Scan disks such as flash disks before using them (2)
- 3.8.3 Prevents unauthorised access to the network. ✓ (1)
- TOTAL SECTION C: 24**

SECTION D: DATA MANAGEMENT**QUESTION 4**

- 4.1 4.1.1 Data integrity refers to maintaining the accuracy and consistency of data stored in a database. ✓ (1)
- 4.1.2 The foreign key is a field in the first table (not the primary key of the first table) that is used to create a link ✓ to the primary key of the other (second) table ✓ in order to establish a relationship. (2)
- 4.1.3 Referential integrity is where all record entries in the secondary table ✓ must refer to an existing record in the table where the field is a primary key. ✓ (2)
- 4.2 4.2.1 The aim of the primary key is to uniquely identify each record in a database table. ✓ (1)
- 4.2.2 Any ONE: ✓(fieldname) ✓(datatype)
 • NumberOfRooms → number (integer)
 • WiFiAvailable → Yes/No (OR true/false) (Boolean) (2)
- 4.2.3 Any TWO ✓✓
 • Accuracy
 • Correctness
 • Currency
 • Completeness
 • Relevance (2)
- 4.7 4.3.1 (a) **SELECT ***
FROM tblGuestHouse
WHERE SpaAvailable = true
ORDER BY HouseName
Criteria:
 • ✓ **SELECT ***
 • ✓ **FROM tblGuestHouse**
 • ✓ **WHERE SpaAvailable = true**
 • ✓ **ORDER BY HouseName** (4)
- (b) **INSERT INTO tblBookings**
(NumOfRooms, DateIn, NumberNights,
DepositPaid, HouseID)
VALUES
(2, #08/06/2018#, 3, True, 1212)
Criteria:
 • ✓ **INSERT INTO tblBookings**
 • ✓ **(list of field names EXCEPT BookingID)**
 • ✓ **VALUES (List of the correct values)**
 • ✓ **the date in between #-characters** (4)

- 4.7.2 (a) $\text{Sum}(\text{NumOfRooms} * \text{NumberNights} * 400.00)$ ✓
(b) `tblGuestHouse, tblBookings` ✓
(c) $\text{Month}(\text{DateIn}) = 5$ ✓
(d) `HouseName` ✓
(e) $\text{Sum}(\text{NumOfRooms} * \text{NumberNights} * 400.00) > 50000$ ✓ (7)

TOTAL SECTION D: 25

SECTION E: SOLUTION DEVELOPMENT

QUESTION 5

5.1 Loop from length of word down to 1 ✓
 newWord ← copy from the word starting at position 1
 to the value of the loop counter ✓ } Inside Loop ✓
 display the newWord ✓

OR

```
for a := length (word) downto 1 do
begin
    newWord := copy(word,1,a);
    redOutput.Lines.Add(newWord);
end;
```

(4)

5.2 Temp ← arrResults[1] ✓
 numElements ← length(arrResults)
 Loop c from 2 to numElements - 1 ✓
 arrResults[c] ← arrResults[c+1] ✓
 arrResults [numElements] ← Temp ✓

(6)

5.3

x	arrNumbers[x]	arrNumbers[x] modulus 4 = 0?	arrTemp[x]
1	8	True	8
2	5	False	
3	3	False	
4	12	True	12
5	2	False	
✓	✓	✓	✓

1 mark per column (4)

5.4 5.4.1 Rewrite(TFile) ✓ (1)

5.4.2 CloseFile(TFile) ✓ (1)

5.5 5.5.1 The method cannot be used in other forms/units/classes. ✓
OR
 The method is not available to be used by other classes/units/forms.
OR
 The method can only be used by the class/unit where it has been coded/declared/defined. (1)

5.5.2(a) fNumberOfEntries := iEntries ✓ (1)

5.5.2(b) Mutator ✓ (1)

5.5.3 determineRegDate must return a string
 getNumEntries must return an integer value (2)

- 5.5.4(a) The use of the data type TSchool instead of the object variable name objSchool. ✓
OR
Replace TSchool with objSchool (1)
- 5.5.4(b) The use of two assignments (:=) operators in one executable statement. ✓
OR
The second := needs to be replaced by =. (1)

TOTAL SECTION E: 23

SECTION F: INTEGRATED SCENARIO**QUESTION 6**

- 6.1 6.1.1 An audio/video file (vodcast) ✓ made available for download from the Internet ✓ (2)
- 6.1.2 *Any ONE* ✓
 • MPeg3
 • MPeg4 (1)
- 6.1.3 Watching a video in real time ✓ without waiting for the video to download. ✓ (2)
- 6.1.4 *Any TWO reasons for preferring the use of an app:* ✓✓
 • Transfers less data/faster speed
 • Better interface
 • Users have more control over what they can do
 • Can receive automatic updates when content is changed on web site (2)
- 6.1.5 Push technology ✓ (1)
- 6.1.6 Dynamic website is generated on the go/will be different for each user ✓
 Static website consists of pages that display exactly in the same format each time for every user. ✓
- Concept:*
 Customised web pages verses unchanged web pages (2)
- 6.1.7 *Any TWO ways to manage networking communication:* ✓✓
 • Turn off notifications
 • Disable social networking when doing important work/close social networking apps
 • Try to remove oneself from FOMO
 • Switch off data connection
- Do not accept:* Switch off cellphone (2)
- 6.2 6.2.1 *Any TWO requirements for strong password:* ✓✓
 • Use capital and lower case letters
 • Use special characters
 • Include numbers
 • Do not use common names or words
- Do not accept:* length of password (2)

- 6.2.2 *Any ONE reason for sending password via SMS: ✓*
 • Does not require an Internet connection
 • Instant messaging/no delay on receiving (1)
- 6.2.3 The public key is sent to the user's browser to encrypt the data ✓
 The private key remains on secure site to decrypt the data ✓
OR
 Public key encryption uses two different keys at once – a combination of a private key and a public key. The private key is known only to your computer while the public key is given by your computer to any other computer that wants to communicate securely with it. (2)
- 6.3 6.3.1 *Any TWO disadvantage using mobile a device: ✓✓*
 • Costly to download data
 • Might not display correctly/poor display on small screen
 • Possibility of poor signals/interference when using an Internet connection (2)
- 6.3.2 *Any ONE ✓*
 • Determine the location of mobile participants
 • Derive statistics based on information received from writing venues
 Also accept other practical examples (1)
- 6.3.3 *Any TWO ways to improve battery life: ✓✓*
 • Change the brightness setting of the screen
 • Close non-essential apps
 • Turn off Bluetooth and Wi-Fi
 • Turn off GPS
 • Limit the play of music and videos (2)
- 6.4 6.4.1 *Virtual memory:*
 The operating system reserves an area on the hard drive ✓ for use as RAM ✓. (2)
- 6.4.2 *Any ONE explanation:*
 • Virtual memory is on the hard drive ✓ which is much slower to access than RAM ✓
 • The type of memory used as RAM is much faster than the hard drive medium.
 • Thrashing can occur if the computer makes use of virtual memory too often which could cause the computer to become very slow and unresponsive (2)

6.5	6.5.1	<ul style="list-style-type: none"> • Split the resources of very powerful machines ✓ between multiple users ✓ – appears as if you have access to own server when it is actually shared with others. • Combine the resources of many machines ✓ - create a super-powerful ✓ service that appears to be a single machine. 	(4)
	6.5.2	<p><i>Any TWO benefits of using SaaS: ✓✓</i></p> <ul style="list-style-type: none"> • Enables collaboration • Ubiquity/Anywhere/Anytime • Rights to the latest version • Renting instead of buying/Cost effective • Access to software on different devices/Can install apps on many devices • Free cloud-based storage • Can work in a browser instead of specific software 	(2)
6.6	6.6.1	Ransomware is a form of malware ✓ in which rogue software holds a user's computer hostage until a fee is paid. ✓	(2)
	6.6.2	Updated versions of operating systems usually include the latest/updated utility software which should be better equipped to protect your computer system against the latest malicious software. ✓	(1)
6.7	6.7.1	<p>Any ONE task a DBMS allows the administrator to do: ✓</p> <ul style="list-style-type: none"> • Add, edit and delete data in the database • Query or search the data in the database • Process the data in the database to extract information 	(1)
	6.7.2	Distributed database system is a system where parts of a database ✓ (the data and the DBMS) are spread/distributed across servers in separate locations ✓.	(2)
	6.7.3	Rollback – the transaction needs to be cancelled by restoring the data to the state before the transaction occurred. ✓	(1)
TOTAL SECTION F:			39
GRAND TOTAL:			150