

## MARKING GUIDELINES

EXAMINATION		NATIONAL SENIOR CERTIFICATE	
GRADE		12	
DATE		JUNE 2024	
SUBJECT		INFORMATION TECHNOLOGY	
PAPER		2	
MARK TOTAL		150	
DURATION (HOURS)		3	
NUMBER OF PAGES		11	



SOUTH AFRICAN COMPREHENSIVE ASSESSMENT INSTITUTE  
SUID-AFRIKAANSE KOMPREENSIEWE ASSESSERINGSINSTITUUT



## SECTION A

### QUESTION 1: SHORT QUESTIONS

- 1.1.1 router (1)
- 1.1.2 path (1)
- 1.1.3 data (1)
- 1.1.4 biometrics (1)
- 1.1.5 drivers (1)
- 1.1.6 backup (1)
- 1.1.7 bandwidth (1)
- 1.1.8 SEO (1)
- 1.1.9 Identity theft (1)
- 1.1.10 ergonomics (1)

**[10]**

- 1.2.1 **H** Audit trail
- 1.2.2 **K** Source code
- 1.2.3 **G** Internet of Things
- 1.2.4 **M** Streaming
- 1.2.5 **C** Virtual Memory
- 1.2.6 **L** Torrenting
- 1.2.7 **A** VPN
- 1.2.8 **N** Metadata
- 1.2.9 **B** RAID
- 1.2.10 **E** Virtual machine

**[10]**

**TOTAL SECTION A: 20**



## SECTION B

### QUESTION 2: SYSTEM TECHNOLOGIES

- 2.1 2.1.1 A set of programs that controls all hardware and other software activities  
√ on the computer. (1)
- 2.1.2 a. CPU or process management √  
b. Input-output management (device drivers) √  
c. Memory management √ (3)
- 2.2 The CPU contains 8 √ independent CPU's on the same CPU √ chip. (2)
- 2.3 It is an independent graphics card that has its own CPU called GPU √ and  
VRam √  
It enhances the performance, √ as a Graphic processing unit is a graphics  
dedicated CPU, which releases the main CPU from graphical processes. It is  
like having an extra CPU's support (3)
- 2.4 Multi-processing √ (1)
- 2.5 CPU time is divided and alternated between various tasks. √ Even though a  
single task is executed, the rotation is so fast that the user experiences the tasks  
as if they are being executed simultaneously. √ (2)
- 2.6
- |                 | Memory                                  | Storage                                            |
|-----------------|-----------------------------------------|----------------------------------------------------|
| <b>Purpose</b>  | Hold open, in-use docs                  | Saves doc's for later use                          |
| <b>Duration</b> | Temporary- power<br>dependant, volatile | Permanent- only needs power to<br>access documents |
- (4)
- 2.7 (any 3 or other good answers)  
uninstall unused apps  
Delete unwanted, old files  
Archive old files for possible later use  
Run the scandisk or check disk command  
Clean the recycle bin (3)
- 2.8 It is a vibrating crystal/device that issues a frequency √ that synchronizes √ all  
activities on the device. (2)
- 2.9 The 1080 refer to the pixel density √ (number of pixels) and the 30 the frames √  
that can be chanced per second √. (2)



2.10 (any 2 or other good answers)

Don't run many applications simultaneously

Do not display too many graphics/videos

Lower brightness if possible

(2)

**TOTAL SECTION B: 25**



## SECTION C

### QUESTION 3: COMMUNICATIONS AND NETWORK TECHNOLOGY

- 3.1 Multiple devices (nodes) ✓ that are connected by means of a communication medium ✓ to allow connection/communication ✓ between them (3)
- 3.2 Wireless Local Area Network is a LAN where communication is done wirelessly (local within the LAN) ✓ and not necessary connected to the Internet. Where Wi-Fi refers to the access point ✓ that connects you to the Internet. (2)
- 3.3 Attenuation: loss of signal over distance/range  
EMI: electromagnetic interferences that alters signals  
Crosstalk: signals being exchanged/crossed and you are accessing another conversation.  
Eavesdropping: the signal being able to be picked up/copied by another (4)
- 3.4 Bluetooth is short distance wireless radio ✓ connection between devices to transfer files/documents ✓ (2)
- 3.5 3.5.1 NIC (network interface card)- device that connects your device to a network (1)
- 3.5.2 Server – a computer of high specification ✓ that only provides resources ✓ to clients in a network (2)
- 3.5.3 Switch – the central connection point ✓ in a STAR LAN. ✓ (2)
- 3.6 The uniform resource locator is the unique address ✓ of the website/page  
The domain name server contains the table that link the URL to the IP address of the website ✓ (2)
- 3.7 Any 2  
Need to obtain a dedicated server  
Server requires NOS  
Employ a network administrator (2)
- 3.8 Mobile office- having all your devices required to do your work with you ✓ where you are, in such a way, not bound to do the work from a physical office ✓. (2)
- Virtual office- a space rented as a physical address ✓ or being used for meetings/conferences, ✓ but all workers work remotely (2)
- 3.9 The files on your device and those on the cloud servers, are the same and consistently updated. (1)

**TOTAL SECTION C: 25**



## SECTION D

### QUESTION 4: DATA AND INFORMATION MANAGEMENT

- 4.1 PK a field (or combo) which content will be unique per record to use that to identify each record. (2)  
 Alternative: a field which could also be used as PK, but was chosen not to be used (2)  
 RL: when a program must change the content of a record in a table the record is temporarily locked until the change has been completed (2)
- 4.2 The protection of a table not to contain any unrelated records to the other table. Meaning: you cannot delete the parent if the associated children are not deleted first and you cannot insert a record into the secondary table if a primary linked record has not yet been inserted into the primary table. (2)
- 4.3 Multiple access to the database adds security (1)
- 4.4 Steps (algorithm applied) to split the table into multiple tables in order to prevent redundant data and/or anomalies (2)
- Any 2  
 Each table should have a PK  
 Single concepts saved per field (ex-name and surname as 2 fields)  
 The same data being repeated that belongs to another entity (2)
- 4.5 Validation: to ensure that the data type is correct and range to fit the general range of a variable. Use spin edits or date pickers or test **TryStrToInt** when integers are required, test between legal boundaries.  
 Verification: the truthiness, authentication of input is usually done by double checking input of alternative source or by authorisation (4)
- 4.6 Relevant: sufficient fields and data pertaining to the topic under research to contribute positively towards useful conclusions  
 Current: the data is fitting to the period the analyses must be made for. (2)
- 4.7 When the program runs and answers are correct, but it bombs out due to division by 0 or not validated data (1)



4.8 Designing the screen to guide the user in making least possible mistakes and have a logical flow and good user experience while using it√ (2)

Any 3

Group input together

Use best components

Use good labelling to explain what is required

Use same typology

(3)

**TOTAL SECTION D: 25**



## SECTION E

### QUESTION 5: SOLUTION DEVELOPMENT

- 5.1 Study the following UML class diagram that was developed to record information regarding the computer literacy of respondents.
- 5.1.1 Not everyone has a cell phone and what will then be saved? (1)
  - 5.1.2 Auxiliary as a value, not saved, is derived from saved attributes (2)
  - 5.1.3 A procedure with the task of updating values of attributes (2)
  - 5.1.4 To return the attribute values formatted as a string- usually for output (2)
  - 5.1.5 Object is created in RAM by allocating the area for all the attributes and methods of the class. Initial values are allocated as instructed in the constructor (2)
  - 5.1.6 Protecting attributes and methods from who have access to use them. This is done by where they are declared. (2)
- 5.2 The use of classes is an example of modular programming design.
- 5.2.1 Multiple coders on same program- collaboration  
Easier to trouble shoot as a piece of code, only feature once  
Less storage (3)
  - 5.2.2 Reuse in different programs  
  
When your company does not have a required skill, a section of the program can be sub contracted to another company for completion. (2)

5.3 Use the following table to complete the trace table:

(5)

Line	iScore	sWord	iLong	i	If i<= ilong	iPos	display	sAlpha
1								ABCDEFGHIJKLMNQRST UVWXYZ
2	0							
3		PAT						
4			3					
5				1	1<=3 true			
6						16		
7	16							
8				2				
5					2<=3 true			
6						1		
7	17							
8				3				
5					3<=3 true			
6						20		
7	37							
8				4				
5					4<=3 false			
9							37	

5.4 rFinal ← iScore  
 If iLong >=10 then rFinal ← iscore \* 2  
 If iLong <=5 then rFinal ← iscore/2

(4)

**TOTAL SECTION E: 25**



## SECTION F

### QUESTION 6: INTEGRATED SCENARIO

- 6.1 To change the devices representation of data to that of the communication medium and back- modulate and demodulate (2)
- 6.2 The predictive web where data regarding you is saved and used to personalise your web experience (2)
- Saving of masses of data to databases on the internet. Being done by various companies regarding a multitude of activities (2)
- Prediction of trends (1)
- 6.3 Using an algorithm to alter saved data in a way that it cannot be understood if intercepted. (2)
- Secure socket layer is a certificate of proof, that monetary transactions will be safe. Uses a private key and public key. Explain both (3)
- Device and/or program that monitors communication from your device to the internet, usually spyware related send to originator thereof. (2)
- 6.4 Denial of service is when a website is bombarded with activity to such an extent that it crashes and unavailable for use to all. Where ransomware is where an intruder encrypt/locks your data and only releases it when an amount of money is paid for the release. Only you may be affected. (4)
- 6.5 The design/manufacturing, use and exposal of electronic devices in a way that has least impact on the environment (2)
- Lessen brightness- all electricity related (2)
- Less printing or back to back
- Recycle where possible
- Donate if someone else can use older equipment (2)
- 6.6 Lossy is when insignificant sections of data are lost during compression- not affecting the quality at all. Like music where frequencies beyond our hearing is removed. Lossless is where nothing is lost at all. (3)
- 6.7 Webinars need high bandwidth and can take long duration. Thus, expensive if done on airtime. VoIP allow for interactive conversation to happen at data cost of the internet making is cheaper to conduct these activities. (2)



- 6.8 When the ISP reduces your bandwidth √ due to you reaching your CAP √ or to allow certain types of priority services/internet traffic, √ such as streaming. (3)

**TOTAL SECTION F: 30**

**GRAND TOTAL: 150**