



Province of the
EASTERN CAPE
EDUCATION

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CHIEF DIRECTORATE – CURRICULUM MANAGEMENT

**GRADE 12 LEARNER SUPPORT
PROGRAMME**

**REVISION AND REMEDIAL TEACHING
INSTRUMENT:
ANSWERS**

SUBJECT: INFORMATION TECHNOLOGY – SECOND PAPER

June 2009

This document consists of 10 pages.

Strictly not for test/examination purposes

SECTION A**QUESTION 1**

- 1.1 A ✓
 1.2 D ✓
 1.3 D ✓
 1.4 B ✓
 1.5 C ✓
 1.6 D ✓
 1.7 D ✓
 1.8 B ✓
 1.9 D ✓
 1.10 B ✓

TOTAL SECTION A (10 x 1): 10

SECTION B:**QUESTION 2: HARDWARE AND SOFTWARE**

- 2.1.1 Virtual memory is a portion of free hard drive space ✓ that emulates RAM. ✓ Data is swapped between RAM and the hard drive (swop file) as needed. ✓✓The free hard drive space is running low / size of the swop file size is set too low. ✓ (5)
- 2.1.2 Increase amount of RAM ✓ so there is less need for virtual memory. ✓ Free up hard drive space / increase maximum size of a swop file ✓ so there is enough space to store data being swapped to disk from RAM. ✓ (4)
- 2.1.3 No. ✓ At some stage there will be a need for virtual memory when there is no longer enough free RAM to hold the data and programs needed in memory. ✓ (2)
- 2.1.4 Hard drive access is slow compared to RAM (decreased system performance). ✓ Also accept thrashing. (1)
- 2.2.1 Any THREE of: ✓✓✓
- Improved speed/performance
 - To be able to use software with 'higher' hardware requirements
 - To be able to use new/additional hardware
 - Overcome frequent system malfunctions (hanging machine etc) etc. (3)
- 2.2.2 Any TWO of: Items ✓✓ Reasons ✓✓
- Additional/newer RAM - to be able to run newer software / improved speed
 - CPU – improved performance/speed
 - Hard drive – provide more storage
 - Graphics card - improved graphics performance (4)

- 2.3.1 A chip that provides low-level communication services between hardware components and contains boot-up instructions ✓✓ (2)
- 2.3.2 To erase and rewrite the contents / instructions of the BIOS. ✓✓
It is normally done so that it can handle new hardware devices. ✓
Also accept: to overcome errors in previous versions (3)
- 2.4.1 They are generally built into the motherboard / on-board controller. ✓✓ (2)
- 2.4.2 Plug-and-Play is a technique whereby new hardware that is added to a computer is automatically detected ✓ and configured by allocating the necessary resources. ✓ (2)
- 2.4.3 Both refer to a new device being automatically detected and configured. ✓
Hot-swappable means that the device can be added / removed without powering the computer down. ✓ (2)
- 2.4.4 IRQs are 'channels' over which devices can send interrupt signals ✓ to the processor for attention from the processor. ✓ (2)
- 2.4.5 Drivers are small, specialised programs ✓ that act as an interface between the operating system and hardware items. ✓ (2)
- 2.5.1 The chipset contains a group of integrated circuits that are used together to control the system and its capabilities. ✓ All components communicate with the processor through the chipset. ✓ (2)
- 2.5.2 Provides a connection between the processor (North Bridge) and high-speed hardware such as RAM. ✓✓ (2)
- 2.5.3 FSB connects processor with high speed components such as RAM whereas the external bus connects (the South Bridge) to slower peripheral connection slots/ devices. ✓✓ (2)
- 2.5.4 They are examples of multi-core processor design in which multiple processors coexist on the same chip (2 or 4 in this case). ✓✓ (2)
- 2.5.5 DDR2 refers to a specific type of memory ✓ and the 800 refers to the speed rating of the memory. ✓ (2)
- 2.5.6 CPU ✓ manufactured by AMD ✓ (2)
- 2.6.1 They are all ports / interfaces. ✓ (1)
- 2.6.2 Parallel data transmission refers to the simultaneous transmission ✓ of a number of bits over a multiple 'lines' / channels ✓ whereas serial transmission refers to the transmission of single bit at time (in sequence) ✓ over a single 'line' / channel. ✓ (4)

- 2.6.3 FireWire ✓ (1)
- 2.6.4 Hard drive ✓ (1)
- 2.6.5 Mouse / keyboard ✓ (1)
- 2.6.6 1394 / FireWire ✓ (1)
- 2.7.1 (Disk) Fragmentation ✓ occurs when parts of the same file get 'scattered' over different areas of the disk (non-contiguous sectors) ✓ as files are deleted from and added to the disk. ✓ (3)
- 2.7.2 By rewriting parts of a file to contiguous sectors ✓ on a hard disk, the speed of access and retrieval is increased. ✓ (2)
- [60]**

TOTAL SECTION B: 60

SECTION C: APPLICATIONS AND IMPLICATIONS

QUESTION 3: e-COMMUNICATION

- 3.1.1 Any TWO of: ✓✓
- Sharing hardware resources
 - Sharing data / software
 - Facilitates e-communication
 - Improved control and ease of administration
 - Better security
 - Easier to plan and implement backup policies etc. (2)
- 3.1.2 Any TWO of: ✓✓
- No cabling required
 - Quick and easy to add components to the network
 - Provides mobility in terms of access points etc. (2)
- 3.1.3 Any TWO of: ✓✓
- Slow
 - Security concerns (eavesdropping etc.)
 - Varying strengths of signal
 - Requires reasonable amount of knowledge to set up
 - Susceptible to interference etc. (2)
- 3.2.1 Acts as a central connection point for components in a network / routes traffic on a network. ✓✓ (2)
- 3.2.2 More efficient in terms of creating less traffic / selects a path or circuit for sending a packet only to the intended recipient instead of broadcasting to all connected devices. ✓✓ (2)
- [10]**

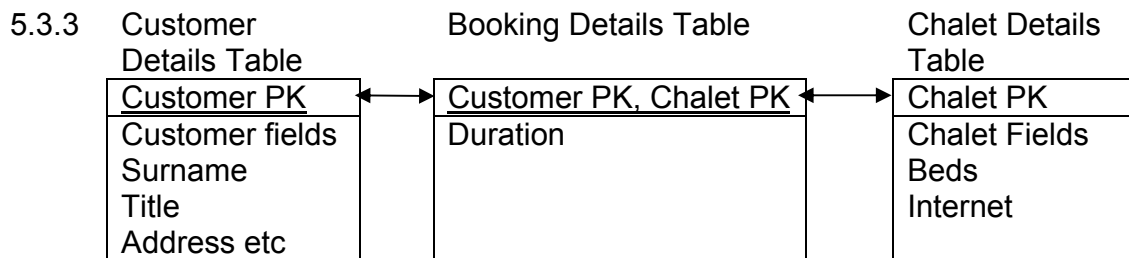
QUESTION 4: SOCIAL AND ETHICAL ISSUES

- 4.1 Social engineering refers to a variety of techniques to win the trust of individuals so as to get access to / get the users to give out sensitive or confidential data. ✓✓
Social networking refers to using the Internet for establishing networks to communicate with friends, family and associates with similar interests. ✓✓ (4)
- 4.2 Any TWO potential benefits: ✓✓
- Exposure to broader markets
 - Cheap way of advertising
 - Potentially lower overhead costs (reduced manpower etc)
 - 24/7/365 availability
 - Transactions are immediate etc
- Any TWO potential drawbacks: ✓✓
- Only have exposure to customers who have Internet access
 - Possibility of fraud
 - Cost of setting up and maintaining a site / expertise needed etc. (4)
- 4.3 Any TWO potential advantages: ✓✓
- Self-paced
 - Material can be customised
 - No need to travel to study
 - Can be cheaper (less study material to purchase)
 - Immediate feedback / diagnostics available in some e-learning systems
 - Multimedia content delivered to promote and facilitate learning etc. (2)

[10]**TOTAL SECTION C: 20**

SECTION D: PROGRAMMING AND SOFTWARE DEVELOPMENT**QUESTION 5: ALGORITHMS AND PLANNING**

- 5.1.1 Any TWO advantages: ✓✓
- Does not require any programming expertise / can be developed in-house
 - Provides access to underlying data which some programmed systems do not / non-proprietary format of data
 - Easy to add data validation tools
 - Access provides powerful searching / sorting tools etc. (2)
- 5.1.2 Any TWO advantages: ✓✓ (2)
- Gets around limitations of database package / provides functionality not easy or impossible to do in Access
 - Can restrict user access to data from a security / integrity point of view
 - Easier to customise solution to client's needs etc.
- 5.2.1 The loop is a post-loop test type of loop so it will try to read at least one line ✓ which could cause an error if the file is 'empty' / 'blank'. ✓ (2)
- 5.2.2 Change the loop to a While-Do loop. ✓ (1)
- 5.2.3 Incorrect relational operator (greater than instead of less than used). ✓
If all values are in the file are greater than zero, the minimum would be incorrectly reported as zero. ✓ (2)
- 5.3.1 Any TWO reasons: ✓✓
- Hinders effective searching
 - Impossible to delimit fields
 - Cannot use lookup fields e.g. for a postal code based on the suburb
 - Difficult to enforce formatting convention rules etc. (2)
- 5.3.2 Database normalisation refers to the process of organising a database into separate tables in such a way as to avoid the duplication of data and also update/deletion anomalies. ✓✓ (2)



- Customer, Chalet and Bookings tables shown ✓✓✓
- Primary keys added for Customer and Chalet tables ✓✓
- Booking table uses the primary key from the Customer and Chalet tables ✓✓

(7)
[20]

QUESTION 6: OBJECT ORIENTATED PROGRAMMING

- 6.1 A constructor is a special method ✓ that creates and initialises a new object. ✓ (2)
- 6.2 Overloading indicates multiple versions of a method, each one with different parameters and code. ✓✓ (2)
- 6.3 It means that the *tNormalGuest* class is the base class ✓ and the *tLoyalGuest* class is a descendant of this class (sub-class) ✓. (2)
- 6.4 Encapsulation refers to the protecting or hiding of data belonging to the object. ✓✓ (2)
- 6.5 It would determine it by inspecting the parameters provided at run-time. ✓✓ (2)
- 6.6.1 You cannot assign an object of the base class to an object of the descendant class. ✓✓ (2)
- 6.6.2 Creates a new instance of the Guest object. ✓✓ (2)
- 6.6.3 To destroy the object and return memory allocated to it. ✓✓ (2)
- 6.6.4 You cannot access the private data fields of an object. ✓✓ (2)
- 6.6.5 A ('get') method would have to be written to access and return the private data fields of an object. ✓✓ (2)

[20]

TOTAL SECTION D: 40

SECTION E: INTEGRATED SCENARIO**QUESTION 7**

- 7.1.1 A search engine is a type of software that creates indexes of Internet sites based on the titles of files, keywords, or the full text of files. ✓✓ The search engine has an interface that allows a user to search the indexes of Internet content and returns matches to the search parameters in the forms of lists of pages which match the query. ✓✓ (4)
- 7.1.2 This refers to all the sites that are located / registered under one of the top-level domains of the Internet, namely .ORG (for non-profit organisations). ✓✓ (2)
- 7.1.3 Any THREE reasons: ✓✓✓
- Different search engines use different methodologies to scour the Internet for new content.
 - The indexes created may differ in terms of how the material is classified.
 - The search algorithm will differ from one search engine site to another.
 - The algorithm for ranking the order of pages/sites returned may differ etc.
- (3)
- 7.1.4 Any THREE ways: ✓✓✓
- Make use of Boolean operators to include or exclude words
 - Try using other synonyms for existing words being used
 - Restrict search to South African (.ZA) domain
 - Specify a date range
 - Be specific / use key words etc
- (3)
- 7.2.1 In a peer-to-peer network all computers can act as both providers of services and resources ✓ whereas in a client-server scenario, there are a few dedicated servers providing resources to the client computers. ✓ (2)
- 7.2.2 Any TWO possible reasons: ✓✓
- None of the older computers might be able to function as a server
 - Easy to set up a peer-to-peer network
 - Less complicated to maintain than a peer-to-peer network / does not necessarily need a knowledgeable network administrator etc
- (2)
- 7.2.3 Any TWO types of servers ✓✓ plus their function ✓✓
- File servers to centrally stores users' files and data
 - Internet / E-mail server / proxy server to acts a proxy to the Internet
 - Application server to store and run applications / programs from
 - Backup server to run and store backups of data on the network etc.
- (4)

- 7.2.4 Thin-client refers to a client-server network configuration where the client computers are largely used for input-output processes and rely primarily on the central server for processing. ✓✓ This could be a cheaper option as only one powerful server needs to be bought, extending the lifespan of the older client computers. ✓. (3)
- 7.3 Anti-spyware software scans known spyware characteristics and patterns by comparing it to its database of spyware definitions. ✓ It also keeps a database of websites known to distribute spyware to warn the user when he or she accesses such a site. ✓ (2)
- 7.4.1 Anti-virus software scans for virus 'signatures' against its virus definitions. ✓ These definitions need to be updated in order to deal with new viruses. ✓ (2)
- 7.4.2 Executable files can possibly contain virus code which can be run to launch or spread a virus. ✓✓ (2)
- 7.4.3 Any TWO solutions: ✓✓
▪ Try changing the file extension from .exe.
▪ Turn off anti-virus software if the sender has scanned the software
▪ Try sending the .exe file in a compressed (zipped) attachment etc. (2)
- 7.5 Any THREE measures: ✓✓✓
▪ Encryption
▪ Setting appropriate user privileges
▪ Access rights etc (3)
- 7.6.1 Any TWO parameters: ✓✓
▪ Cap limitations
▪ Speed
▪ Availability of service in your area
▪ Need for mobility or not etc. (2)
- 7.6.2 A router is an electronic device that handles the task of routing messages / packets between two networks. ✓✓ (2)
- 7.6.3 An IP address is a unique set of numbers ✓ that specify the location of a device on a network running the TCP/IP protocol. ✓ (2)
- 7.6.4 A proxy server caches web pages previously downloaded. ✓ The proxy will first try to access the requested webpage from its local cache before trying to retrieve it from the Internet. ✓ (2)
- 7.6.5 A computer outside the network will only see the IP-address of the proxy server ✓ and not the IP-addresses of the computers on the network itself. ✓ (2)

7.7.1 VoIP refers to the ability to convert voice conversations over a data network using the Internet Protocol. ✓✓ (2)

7.7.2 Any FOUR measures: ✓✓✓✓ (4)
▪ Check the dates of publication – one may have ‘superceded’ the other.
▪ Cross reference with further sites.
▪ Try and check the credentials of the authors.
▪ Check to see if the page is sponsored and by whom.
▪ Check for external references that link to other sources from the pages.
▪ Try and contact an authority such as ICASA etc. [50]

TOTAL SECTION E: 50

GRAND TOTAL: 180