18.0 COMPUTER STUDIES (451)

Computer Studies was tested using three papers in the year 2007 KCSE examination. ***Paper 1 (451/1)***, a theory paper tested the entire syllabus. It had two sections: A and B. Questions in ***section A*** were set from any part of the syllabus, while those in ***section B*** were mainly on computer applications. The paper is taken in 2½ hours and carries 100 marks. ***Paper 2 (451/2)*** is a practical paper with questions that were set from two packages: ***database, spreadsheets, desktop publishing*** or ***word processing***. The two questions are compulsory and the examination is taken in 2½ hours and carries a total of 50 marks. ***Paper 3 (451/3)*** is a project paper taken by candidates from the months of March to September. It contributes 50 marks out of the 200 marks allowed for the whole examination.

18.1 CANDIDATES' GENERAL PERFORMANCE

The table below shows performance in Computer Studies in the years 2006 and 2007.

Table 21: Candidates' Overall Performance in Computer Studies for the last Two Years

Year	Paper	Candidature	Maximum Score	Mean Score	Standard Deviation
2006	451/1		100	51.51	18.22
	451/2&3		100	57.57	16.77
	Overall	**4,181**	**200**	**109.08**	**32.00**
2007	451/1		100	45.89	18.3
	451/2&3		100	63.62	15.44
	Overall	**4,732**	**200**	**109.54**	**30.00**

From the table above, it can be observed that:

18.1.1 Candidature in Computer Studies (451) increased from ***4,181*** candidates in the year 2006 to ***4,732*** candidates in the year 2007, a candidature increase of ***551*** candidates ***(13.18%).***

18.1.2 Performance in paper 2 (451/2) dropped from a mean score of ***51.51%*** in the year 2006 to ***45.89%*** in the year 2007. The drop can be attributed mainly to lack of adequate preparation by the candidates.

18.1.3 Performance in the practical and project papers combined (451/2&3) went up significantly from a mean score of ***57.57%*** in the year 2006 to ***63.62%*** in the year 2007.

18.1.4 Overall performance in computer studies improved slightly as attested by a mean score of ***109.08*** in the year 2006 when compared to ***109.54*** in the year 2007.

Questions which were poorly performed by candidates in the year 2007 KCSE Computer Studies (451) examination are discussed here below.

18.2 PAPER 1 (451/1)

Question 5

Some of the storage disks available are: Zip disks, $3\frac{1}{2}$ inch floppy disks, DVDs and $5\frac{1}{4}$ inch floppy disks. Arrange these devices in an ascending order of storage capacity.

Some storage disks, that is, Zip disks, 3½ inch floppy disks, DVDs and 5¼ inch floppy disks were listed randomly and candidates were required to list them in ascending order of storage capacity.

Weaknesses

Many candidates could not list these storage media in ascending order. Some even listed the 3½ inch floppy disks before the 5¼ inch floppy disks. This could have been as a result of candidates lack of knowledge on the 5¼ inch floppy disk which is now obsolete (outdated) and no longer in use.

Expected Responses

5¼ inch floppy disks, 3½ inch floppy disks, Zip disks, DVDs.

Advice to Teachers

Teachers should teach this area on storage media thoroughly and point out the differences between the various types of storage disks that are covered in the syllabus and their storage capacities even if the media has been overtaken by events. They should link the students to backward and forward ICTs.

Question 6

You have been asked to change your computer password. State a precaution you need to take in order to avoid each of the following:

(a) forgetting the password

(b) hacking.

Candidates were to state the precaution one needs to take in order to avoid forgetting a password.

Weaknesses

Many candidates stated what should be done if/when one forgets a password which was not the requirement of the question. Candidates may have misunderstood the question which required knowledge on the preventive action that one should take so as not to forget a password while the candidates gave the curative action that should be taken when one has already forgotten the password.

Expected Responses

(a) To avoid forgetting a password, use a simple password that you can easily regenerate.

(b) To avoid hacking, use a password, do not use your names, family names or one character.

Advice to Teachers

Teachers should explain to the students the best possible ways of creating both complex and easy passwords and how to avoid forgetting them.

Question 10(b)

State **four** situations in which data may lose integrity.

Candidates were required to state four situations in which data may lose integrity.

Weaknesses

Most candidates gave detailed responses on lost integrity and did not address the requirement of the question in terms of threats to lose of integrity. It was evident from the candidates' responses that some misunderstood the question.

Expected Responses

- During transmission.
- During data processing.
- During data capture.
- During data collection.
- During storage.

Advice to Teachers

It is important for teachers to impress on candidates to take time to understand the question before they write down an appropriate response. While teaching the topic on ***Data Security, Integrity*** and ***Controls***, teachers must differentiate threats to data security and actual situations where data has been compromised so that the students grasp the concepts properly. Accuracy, timeliness and relevance should be stressed.

Question 17(a)

(a) Define the following web related terms:

(i) web browser

(ii) hyper link

(iii) hyper text document.

Candidates were required to define the terms Web browser, Hyperlink and Hypertext document

Weaknesses

Many candidates viewed a web-browser as a person browsing and had difficulties distinguishing between a hyperlink and a hypertext document. This could have been as a result of many schools not having internet connections hence lack of exposure. Some candidates especially from remote areas have never used the internet.

Expected Responses

(i) A ***browser*** is a program that enables one to find, retrieve, view and send hypertext and hypermedia document(s) over the World Wide Web (www).

(ii) A ***hyperlink*** is an element / text/ picture / icon or graphic in an electronic document that links to another place in the same document or entirely on a different document /page/site.

(iii) A ***hypertext document*** is a document containing links to the documents located on the same computer or another computer on the internet.

Advice to Teachers

Where there is no internet, Teachers should make use of simple web pages in stand-alone computers to train the students on Web terminology and skills. Visits to institutions connected to the internet will assist a lot.

Question 19

A manager wishes to replace the current manual system with a computerised one.

(a) Describe **three** main areas that must be evaluated to justify the replacement.
(b) List the **three** areas that would be considered in the requirements specifications.
(c) State and explain **three** ways that can be followed to replace the current system.

This question required candidates' to describe areas to justify replacement of a current system with a computerized one, state requirement specifications and explain ways to follow to replace the current system.

Weaknesses

Most candidates just stated instead of describing the areas to justify replacement of a current system. Others mistook the methods of replacing a system with those of developing one. This could have been as a result of wrong interpretation of the question.

Advice to Teachers

Teachers should use well explained diagrams while teaching the concepts of System Development Life Cycle (SDLC) to the students so that they grasp the pre-development, development and post-development strategies in SDLC.

Expected Responses

(a)

- ***Economic feasibility***: it involves benefits and cost.
- ***Technical feasibility***: it involves determining whether or not a system can actually be constructed to solve the problem at hand.
- ***Operation feasibility***: asks if the system will work when developed and installed and how the user will take it.
- ***Scheduled feasibility***: it is concerned with whether the system can be put into use within the stipulated time.
- ***Legal feasibility***: involves policies and government laws.
- ***Social feasibility***: acceptability by users.

(b)

- Hardware requirements
- Software requirements
- User requirements
- Input requirements
- Output requirements

(c)

- ***Parallel change over***: the old system continues alongside the new system for a while.
- ***Direct change over***: the user stops using the old system and starts using the new one
- ***Phased / Pilot change over***: this is used with larger systems that can be broken into individual modules that can be implemented separately at different times.

18.3 PAPER 2 (451/2)

This paper was composed of two (2) questions. ***Question 1*** was on ***spreadsheets*** while ***Question 2*** was on ***word processing***. Each question comprised of 50 marks and candidates were required to answer both questions.

Question 1(l) (ii)

Perfect Pizza Factory manufactures pasta for distribution to restaurants in Nairobi. Assuming that you are now working for the factory and have been given the following sales data:

	A	B	C	D	E	F	G	H	I
1	Restaurants	July	August	September	October	November	December	Total Product Sales	Average
2									
3	Nankos	34567	45671	89650	67222	56113	96282		
4	Burgees	100000	97600	82199	105999	140663	190654		
5	Kenge	96543	97600	82199	105999	140663	190654		
6	Tika	65000	97600	82199	105999	140663	190654		
7	Appetos	103456	97645	82297	105669	140220	175000		
8	Marries	76899	85400	96709	101324	140882	181230		
9	Generals	98000	97600	82199	105999	140663	190654		
10	My Café	25000	19654	15222	8000	5602	200		
11	Shooters	86777	75432	84366	105999	55678	201345		
12									
13									
14	Total Monthly Sales								

Given that the July sales were 10% above the sales for June in all restaurants:

(ii) insert a column before July and use absolute cell referencing to calculate the sales for June;

In this question, candidates were required to use absolute cell referencing to calculate 10% less of values existing in a worksheet, that is, values for June by use of July values.

Weaknesses

Most candidates were unable to compute the required values. The formula used was not correctly constructed. This portrayed lack of very basic computation techniques. Some candidates attempted to change the value provided, that is, 10 and changed it to 10% but still typed the wrong formula.

Expected Responses

Given that the value 10 is in cell B16 and that after inserting a blank column for June the column with July sales shifted to column C from B, the expected formula was

= C3 * 100/(100 + $C $16)

or

= C3 * B$ 16/11

or

= C3 * $B $ 16/11

or

= C3 * 100/(100 + C $16)

The formula was to be typed in B3 and then copied down the column in order to generate the values for the other restaurants for the month of June.

Question 2 (a) & (b)

Using a word processing package, type the passage below as it appears and save it as A:\STRESSDOC1.

1

A parent who never expressed appreciation, said, 'Well done' or 'I'm proud of you' can leave an indelible mark.

With attitude

There is much more to facing stress in life than the right diet and physical exercises. Indeed, it could be that the attitude on which your life is founded is the most vital part of the picture.

Take charge of your life
Keeping stress at bay involves treating yourself as someone with a right to life. That will involve a degree of assertiveness and confrontation. Those very words can conjure up images of a shoot-out at the OK Corral. It does not have to be that way. There is a world of difference between being assertive and being aggressive. Sadly, many who need to break out from being always submissive to the expectation and demands of others can only imagine that the alternative is to be aggressive. While the real alternative is to be assertive.

You are submissive when:
- you are not willing or not able to express your feelings, needs, values and personal concerns
- you let others invade your personal space and trample on your rights.

You are aggressive when:
- you tend to stomp over other people
- you inflict and impose your views and values on others, expressing your feelings at their expense.

You are assertive when:
- you say what you want, without overwhelming or abusing other people
- you are clear about your own position and let other people know
- you can accept that others may have views different from your own and may wish to negotiate their position accordingly.

Assertiveness involves much more than defending your rights. It equally concerns your being prepared to expect that your own needs be recognized and met. In particular, two key statements typify the maturity of character that lies behind being assertive. These are the conviction that:

(a) *I have the right to decide for myself whether or not I am responsible for finding a solution to someone else's problem and they have the same right when faced with mine.*

(b) I have the right to deal with people without having to make them like me and they have the same right concerning me.

Few people find that assertiveness comes easily. But the hard work involved in monitoring your personal style together with some training through a local evening class or appropriate reading pays dividends. This is because mastering assertiveness leads to:

- better and more honest communication
- giving others greater dignity and respect
- learning to relax and reduce anxiety
- getting more of your needs accepted
- closer interpersonal relationships
- taking responsibility for what happens in your life
- feeling better about yourself
- protection from being taken advantage of by others.

(b) (i) Spell check the passage.

(ii) Indent the first line of the paragraph starting with "Keeping stress at bay....." by 1.2 cm (or 0.47").

(iii) Select the paragraph starting with "Assertiveness involves much more....." and set the left and the right margins to 2 cm (or 0.79") and fully justify. Save the changes as A:\STRESSDOC2.

(iv) Insert page numbering at the bottom center of each page.

In part 2(a) and (b) of the question, candidates were required to type the passage as it appeared, indent the first line in the paragraph, change margins of a paragraph and insert page numbers on the passage.

Weaknesses

The paragraph starting with ***"A parent who...."*** was not correctly typed by quite a number of candidates. Some did not note that the paragraph was right aligned. So they kept on pressing the enter key at the end of each line. This changed some lower case characters to upper case at the beginning of each line. Another weakness was in the formatting of the character ***"1"*** to conform to the one that appeared in the passage. Most candidates did not pay attention to the size of the numeric character and instead left it unformatted. Others changed the font size to conform. Many candidates were also unable to indent the first line of the paragraph starting with ***"Keeping stress at bay...."*** by 1.2cm.

Expected Responses

(a) Candidates were expected to format the document and align it to the right while typing the given paragraph. Candidates could have formatted the character "1" properly if they treated it as a drop cap. The drop cap was in margin and dropped nine lines.

(b) (i) Candidates were required to spell check the passage.

(ii) Candidates were required to use paragraph formatting features to format the paragraph to the required specifications.

(iii) Candidates were required to select the paragraph and then use page formatting features to change the margins to the required measurement.

(iv) Candidates were required to correctly number the pages of the passage.

18.4 PAPER 3 (451/3)

This paper comprised of one question that was to be undertaken in a period of seven (07) months. Candidates were required to be supervised by a teacher who was eventually expected to mark the candidates' work before the final marking by the external assessor who was sent by the Council.

Weaknesses

Weaknesses were noted in ***Analysis, Design*** and in the ***Implementation*** of the design.

18.4.1 Analysis

Candidates were required to study the question thoroughly in order to identify weaknesses of the current system, possible benefits with the computerized system and feasibility analysis of the proposed system development as well as the complete problem definition.

Weaknesses

Some candidates seemed to have knowledge of the requirements but they gave wrong content or very scanty explanations. This was depicted in the candidates' lack of ability to relate what they had learned with the problem at hand. This is a clear indication of the failure of the candidates to apply classroom knowledge in solving real life problems in computing.

18.4.2 Design

Candidates were required to use the details provided to come up with entities or relations and their attributes and their relationships. These structures were to be used as the system specifications for the required system.

Weaknesses

Candidates portrayed lack of ability to formulate good designs for use in system implementation.

18.4.3 Demonstration and Testing

Candidates were required to implement ways of validating input since the users are prone to many typing errors.

Weaknesses

One of the major weaknesses was in system validation especially with respect to input. Most candidates did not implement validation checks.