25.0 COMPUTER STUDIES (451)

From the inception of revised secondary curriculum in the year 2002, the subject Computer Studies has been examined **five** times in the years **2006, 2007, 2008, 2009** and **2010** respectively.

The subject is examined in three papers:

- Computer *Studies paper one* coded 451/1, a theory paper which covers the entire syllabus;
- Computer *Studies paper two* coded 451/2, a practical paper which examine the application packages in the syllabus.
- Computer *Studies paper* 3, coded 451/3 which is a trade project.

26.1 CANDIDATES' GENERAL PERFORMANCE

The table below shows performance in Computer Studies in the years 2007, 2008, 2009 and 2010.

Table 31: Candidates' Overall Performance in Computer Studies for the last three years.

Year	Paper	Candidature	Maximum Score	Mean Score	Standard Deviation
2007	451/1		100	45.89	18.3
	451/2&3		100	63.62	15.44
	Overall	**4,732**	**200**	**109.54**	**30.00**
2008	451/1		100	38.78	15.64
	451/2&3		100	53.13	15.74
	Overall	**5,498**	**200**	**91.66**	**29.46**
2009	451/1		100	45.41	16.48
	451/2&3		100	50.93	16.39
	Overall	**6,115**	**200**	**96.34**	**30.32**
2010	451/1		100	51.98	17.38
	451/2&3		100	59.83	16.86
	Overall	**7,045**	**200**	**111.81**	**32.30**

The following are the observation:

25.1.1 There is a dramatic increase in candidature in the subject from **4,732** in the year 2007 to **7,045** in year 2010. This representing **48.9%** and **15.2%** from 2009 to 2010

25.1.2 Overall performance in the subject increased from a mean of **96.34** in the year 2009 to **96.34**in the year 2010.

25.1.3 Performance in **paper 1 (451/1)** increased from a mean of **45.41** in the year 2009 to a mean of **51.98** in the year 2010, representing a **14.47%** increase.

25.1.4 Performance in both the practical paper **(451/2)** increased from a mean of **50.93** in the year 2009 to a mean of **59.83** in the year 2010, representing a **17.47%** increase.

Questions which were poorly performed in the 2010 examinations are briefly discussed below.

25.2 PAPER 1 (451/1)

Question 1
List four activities carried out by a data processing system.

Weaknesses
Students were listings the stages of data processing cycle

Expected Response

- Input

- Process
- Control
- Storage
- Output

Advice to Teachers
Teachers should emphasise the distinction between the activities in SDLC and the data processing stages

Question 3
Explain why an intranet is a more secure way to share files within an organisation compared to the internet.

Expected Response
Intranet is a company's internal network to which outsiders cannot get access to while Internet allows outsiders to access company network if proper security measures are not implemented.

Weakness
Some candidates could not relate intranet security in terms of number of users

Question 7
Study the pseudo code below and determine its output.

1. (a) T = 0
   (b) M 0
   (c) K 1
2. (a) M = M + T
   (b) T = T + 5
   (c) K = K+l
3. Repeat step 2 while K< 3
4. Write M, T
5. Exit

Expected Response
Learners were expected to generate the following list of output

T	M	K
0	0	1
5	0	2
10	5	3

Weakness
Candidates showed inability to execute the number of times the pseudo code loop executes and therefore producing wrong output.

Question 11
Copyright laws are laws granting authors the exclusive privilege to produce, distribute, perform or display their creative works. It is a legal framework for protecting the works such as book publishing, motion-picture production and recording.

State **two** challenges that are posed to these laws by ICT.

Expected Response
- Easy of communication.
- Easy of duplication
- Enforcing is still a problem e.g. officers are not computer literate.
- Lack of capacity for people enforcing the law

Weakness
The question was poorly attempted. Majority of the candidates were unable to give challenges posed to copyright laws by ICT

Advice to the teacher
The teachers are expected to make emphasize on this area. There are many imported reference materials which exhaustively cover this topical area.

Question 16
(a) Machine language programs are more difficult to write than high-level language programs. State **two** reasons for this.

(b) In order to process examination results of students in a school, their names, index numbers and scores in 11 subjects are required. The average score for each student is then determined and a grade assigned. This process is repeated for all 40 students in a class.

Draw a flowchart to:
Read a student's name, index number and the scores in all the subjects.
Determine the student's average score.

- Assign a grade to the student depending on the average score as follows:

Score	Grade
80 < score	A
60 < score < 80	B
40 < score < 60	C
score < 40	F

Display the student's name, index number, average score and the grade.

- Repeat the above steps for all the students in the class.

(c) Below is a list of program segments in different generations of programming languages.

Identify the language for each.

(i) LDA 105 SUB 40 ADD 20
(ii) 10000110 10111101 01111000 0001100
(iii) For x: = 1 to 10 do Write (x);

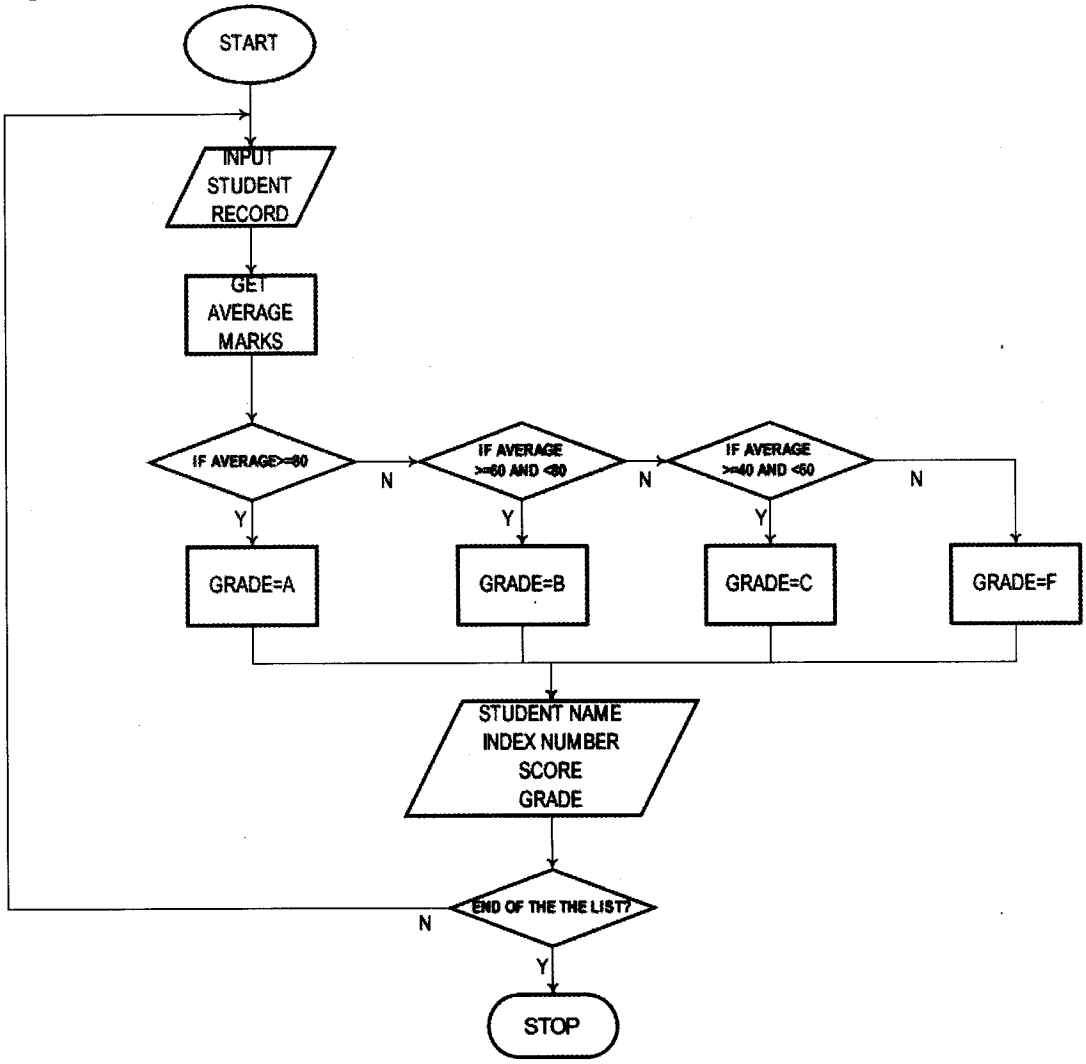
Expected response
(a)

- It is time consuming to develop.
  It is easy to make mistakes because only O's and 1's are used.
- Program written for one computer model may not run on another computer model.

Expected response

(b)

Expected flow chart is as shown



Expected response

(c)

Generation of programming languages:

(i) Second generation

(ii) First generation

(iii) Third generation

Weakness

Most students were unable to use appropriate flow charting tools. They were also unable to conceptualise the looping structure in the narrative.

Advice to the teacher

Flow charting concept should be emphasised when teaching by using real life problems. Learners to be exposed to more exercises on the same.

Question 20

(a) Using ones complement, convert the decimal number -9 into a 6-bit binary number.

(b) (i) State three standard coding schemes used in data representation.

(ii) In a certain coding scheme, each character occupies 7 bits. Letters of the alphabet are assigned consecutive codes. If letter N is represented by 1010010; what is the representation of letter **A** in this coding scheme?

(c) Using twos complement, show how the arithmetic below would be carried out on a 8-bit computer system.
(+54)-(+29)

Expected response

(a)

$9_{10}=1001_2$.
=001001 in six bits
$-9_{10}=110110$

(b) (i) ASCII, BCD, EBCDIC, Extended ASCII

A: $1010010_2 = 82_{10}$

DECIMAL CODE = 82-14
= 69
= 1000101_2

B: ASCII

C: $54 = 110110_2$
$29 = 11101_2$

COMP(29) = 00011101_2
= 11100010_2
+ 1_2

11100011_2

ADD = 00110110
11100011
100011001
$0011001_2 = 25_{10}$

Weakness

The candidates had difficulty in representing letters character in its equivalent binary notation implying that they had no idea on how characters are represented using the **four** coding schemes as required in the syllabus namely; ASCII, BCD, EBCDIC, Extended ASCII

25.3 PAPER 2 (451/2)

Question 1

Mr Kiprop Onyango owns houses for rent. Table 1 below is a record of his tenants' rent payments.

Tenant ID	Tenant Name	House Number	Month	Amount (Ksh)
2019	Akinyi	Al	January	3,000
2022	Maloi	A2	January	4,000
2038	Nduta	Bl	January	4,500
2059	Rop	B2	January	4,500
2070	Mutua	CI	January	4,000
2090	Akinyi	Al	February	3,000
3030	Maloi	A2	February	4,000
3040	Nduta	Bl	February	4,500
3025	Mutua	CI	February	4,000
3050	Kagu	C2	February	3,500
3055	Maloi	A2	March	4,000
3090	Kagu	C2	March	3,500

Table 1

(a) Create a database file that can be used to store the above data. Name the file 'Rent'.

(b) Create two tables, one to store tenant details and another to store tenant rent payments. Name the tables 'Tenants' and 'Payments' respectively.

(c) Create a relationship between the two tables.

(d) Design a form to be used to enter data into each of the two tables

(e) Enter the information given into the two tables.

(f) Create a report showing the amount Mr. Onyango received from each tenant, the total for each month and the total amount he received over the three months. The report should be titled 'Rent Income'. Save the report as 'Income'.

(g) (i) Create a query named 'Statement' to extract Maloi's records of rent payment.
(ii) Create a report named 'Tenant Statement' showing Maloi's rent payment history. The report should be titled 'Tenant Statement'.

(h) Print the two tables and the two reports.

Expected response

(a) Creating a database
Correct database name

(b) Creation of the two tables
Each table ½ mark
Primary key (1 table)
- Fields (first table)
  - 3 fields
- Fields for the 2nd table

(c) Relationship
- Correct relationship
- Choosing correct table
- Enforcing the relationship

(d) Creating the two forms
- Existence of fields
- Providing name to each form

(e) Each tenant record (Form) ½ x 6
records Each payment record (Form) ½ x 12 records

(f) Presence of report
Appearance correct (fields)
- Name
- Month
- Amount

Use of functions
- Sum January, February, March
- Grand total

Report naming and saving
Title name

(g) (i) Presence of correct query
Presence of fields (Name, Amount, Month) in the query Correct criteria
Saving query

(ii) Report
Data source (query) Name of report (saving) Title of report

(h) Printing: Candidates expected to print:
- 2 tables
- 2 reports

Weaknesses

- Candidates were not keen to name the database using the name provided, they use default names as supplied by the application.
- Some candidates were unable to split the table provided into two distinct entities, showing clearly that they lacked the basic knowledge of normalisation.
- Some candidates created forms that were not related to the table structure
- There were cases of wrong data entry, indicated that learners were not keen on their work or they lacked basic keyboard skills.
- Creating report with summaries proved to be an uphill task for some many candidates indicating that they lacked the basic concepts on the creation of summaries using the inbuilt functions as provided for by the application.
- Some learners were unable to produce the required hard copies of their work, indicating that they lacked concepts of printing.

Advice to Teachers

- The teachers should introduce basic concepts of normalisation up to the First Normal Form (1NF) without taking the candidates through the complexities of normalisation. The learners should be able to appreciate the need to have tables split.
- Schools should ensure that learners are exposed to hardcopy output devices, which include printers and their accompanying accessories so that learners can perform some of the required task with speed and accuracy.

29.23 COMPUTER STUDIES (451)

29.23.1 Computer Studies Paper 1 (451/1)

SECTION A (40 marks)

*Answer **all** the questions in this section in the spaces provided.*

1 List **four** activities carried out by a data processing system. (2 marks)

2 (a) Define data communication. (1 mark)

(b) State **two** characteristics of an effective data communication system. (2 marks)

3 Explain why an intranet is a more secure way to share files within an organisation compared to the internet. (2 marks)

4 Distinguish between a formula and a function as used in spreadsheets. (2 marks)

5 State **four** functions which are specific to Network Operating Systems. (4 marks)

6 The word race is appearing several times in a long story document composed using a DTP package. How would this word be safely replaced with the word content?. (3 marks)

7 Study the pseudocode below and determine its output. (3 marks)

```
1.  (a)  T  =  0
    (b)  M  =  0
    (c)  K  =  1
2.  (a)  M  =  M + T
    (b)  T  =  T + 5
    (c)  K  =  K + 1
3.  Repeat step 2 while K < 3
4.  Write M, T
5.  Exit
```

8 Give **two** reasons why the use of finger prints and voice input can be used as reliable forms of security in computer systems. (2 marks)

9 State the purpose of each of the following memories in a computer system. (2 marks)

(a) RAM

(b) Hard disk

10 Explain why telecommuting is not suitable for a doctor when carrying out an operation on a patient. (2 marks)

11 Copyright laws are laws granting authors the exclusive privilege to produce, distribute, perform or display their creative works. It is a legal framework for protecting the works such as book publishing, motion-picture production and recording. State two challenges that are posed to these laws by ICT. (2 marks)

12 State **two** reasons why it is necessary to use standard furniture in a computer laboratory. (2 marks)

13 Describe the following terms as used in mail merging: (4 marks)

(a) main document;

(b) data source.

14 State **three** ways in which ICT can be used in shipping control. (3 marks)

15 A firm operates an order system that coordinates orders, raw materials and inventory across its three factories. Currently the orders are processed manually at each factory and communicated to the others over the phone . The management intends to computerise their operations. State the first two computer professionals who will be required and their roles.

(4 marks)

SECTION B (60 marks)

*Answer question **16** and any other **three** questions from this section in the spaces provided.*

16 (a) Machine language programs are more difficult to write than high-level language programs. State two reasons for this. (2 marks)

(b) In order to process examination results of students in a school, their names, index numbers and scores in 11 subjects are required. The average score for each student is then determined and a grade assigned. This process is repeated for all 40 students in a class.
Draw a flowchart to:

- Read a student's name, index number and the scores in all the subjects.
- Determine the student's average score.
- Assign a grade to the student depending on the average score as follows:

Score	**Grade**
80 ≤ score	A
60 ≤ score < 80	B
40 ≤ score < 60	C
score < 40	F

- Display the student's name, index number, average score and the grade.
- Repeat the above steps for all the students in the class. (10 marks)

(c) Below is a list of program segments in different generations of programming languages. Identify the language for each. (3 marks)

(i)
```
LDA  105
SUB  40
ADD  20
```

.....

(ii)
```
10000110    10111101
01111000    0001100
```

.....

(iii)
```
For x: = 1 to 10 do

        Write (x);
```

.....

17 (a) The following are some of the phases in the systems development life cycle (SDLC): system analysis, system design, system implementation, system review and maintenance. State **four** activities that are carried out during the system implementation phase. (4 marks)

(b) Give **three** reasons why system maintenance phase is necessary in SDLC. (3 marks)

(c) State **two** instances where observation is not a viable method of gathering information during system analysis stage. (2 marks)

(d) Various considerations should be made during input design and output design. State **two** considerations for each case. (4 marks)

Input design.

Onput design.

(e) State **two** reasons why an organisation may use other strategies of software acquisition other than developing their own. (2 marks)

18 (a) Using **two** examples, explain the term field properties as used in database design. (2 marks)

(b) Below is an extract from a hospital database table.

Patient No	Name	Date Registered	Amount paid	Remarks
LDK/001	Mathew Olang	04/05/08	2500.00	To go for x-ray
LDK/004	Joy Chelimo	07/06/08	1200.00	Medicine to be ordered
LDK/008	John Kamau	09/08/08	3500.00	To be admitted for further check up
LDK/002	Gerald Wasike	02/04/05	800.00	To come back for review

(i) State with reasons the most suitable data types for the following fields: (8 marks)

(I) patient No;

(II) date registered;

(III) amount paid;

(IV) remarks.

(ii) Which would be the most appropriate primary key field for the above table? (1 mark)

(iii) What is the purpose of a primary key field in database design? (1 mark)

(iv) Describe how information about patients who registered after 09/08/06 can be extracted from the database. (3 marks)

19 (a) Explain how data in a computer system is secured using: (4 marks)

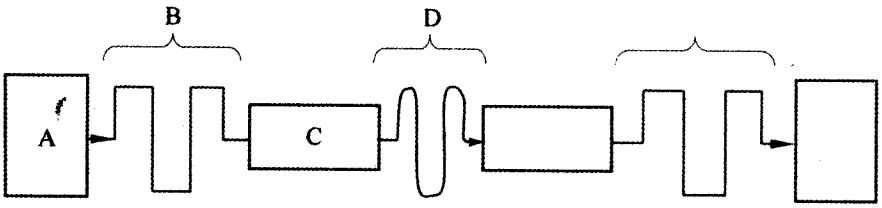
(i) password;

(ii) user access level.

(b) State **three** characteristics of a suitable password. (3 marks)

(c) State **two** characteristics of a computer that is infected by computer viruses. (2 marks)

(d) (i) The figure below shows how data is transmitted through a public telephone line.



Name A, B, C and D. (4 marks)

A ..... B .....

C ..... D .....

(ii) State **two** advantages of using fibre optic cables over satellite in data communication. (2 marks)

20 (a) Using ones complement, convert the decimal number -9 into a 6-bit binary number. (3 marks)

(b) (i) State **three** standard coding schemes used in data representation. (3 marks)

1 Mr Kiprop Onyango owns houses for rent. Table 1 below is a record of his tenants' rent payments.

Tenant ID	Tenant Name	House Number	Month	Amount (Ksh)
2019	Akinyi	A1	January	3,000
2022	Maloi	A2	January	4,000
2038	Nduta	B1	January	4,500
2059	Rop	B2	January	4,500
2070	Mutua	C1	January	4,000
2090	Akinyi	A1	February	3,000
3030	Maloi	A2	February	4,000
3040	Nduta	B1	February	4,500
3025	Mutua	C1	February	4,000
3050	Kagu	C2	February	3,500
3055	Maloi	A2	March	4,000
3090	Kagu	C2	March	3,500

Table 1

(a) Create a database file that can be used to store the above data. Name the file 'Rent'. (2 marks)

(b) Create two tables, one to store tenant details and another to store tenant rent payments. Name the tables 'Tenants' and 'Payments' respectively. (9 marks)

(c) Create a relationship between the two tables. (3 marks)

(d) Design a form to be used to enter data into each of the two tables. (7 marks)

(e) Enter the information given into the two tables. (9 marks)

(f) Create a report showing the amount Mr. Onyango received from each tenant, the total for each month and the total amount he received over the three months. The report should be titled 'Rent Income'. Save the report as 'Income'. (8 marks)

(g) (i) Create a query named 'Statement' to extract Maloi's records of rent payment. (4 marks)

(ii) Create a report named 'Tenant Statement' showing Maloi's rent payment history. The report should be titled 'Tenant Statement'. (4 marks)

(h) Print the two tables and the two reports. (4 marks)

2 Table 2 below shows the admission numbers and names of five students and their scores in six subjects in a mock examination.

ADM No.	NAME	English	Mathematics	Biology	Chemistry	Physics	History
3030	Victor Onyango	77	68	75	35	58	80
3032	Zablon Mutiso	44	77	80	42	60	73
3037	Pauline Chepleting	68	59	91	39	59	75
3040	Naomi Nafula	55	80	89	48	38	66
3044	Jamleck Kiongo	69	82	83	43	44	70

Table 2

(a) Enter the above data into a worksheet and save the file as 'Mock results 1'. (10 marks)

(b) Using a formula, calculate the:

(i) total score for each student;

(ii) mean score for each student. (4 marks)

(c) Use a function to obtain the mean for each subject. (3 marks)

(d) A student is awarded a 'pass' if their mean score is 60% or more. Use a function to determine the number of students who are awarded 'pass'. (2 marks)

(e) Format the worksheet as follows:

- Boarders: single line
- Subject heading: Align 90°
- Merge the cells above all the subject headings so that the text 'SUBJECT' is above them.
- Mean score: one decimal place. (4 marks)

(f) Using a function, determine the lowest and the highest score for each subject. (4 marks)

(g) Copy the contents of the worksheet to a blank worksheet and insert a blank column after every subject.
Label the new columns as EngG, MathG, BioG, ChemG, PhyG and HistG respectively. On the inserted columns, compute the grades using the IF function based on the following criteria. (13 marks)

Mean Score	Grade
Score ≥ 75	A
60 ≤ score < 75	B
50 ≤ score < 60	C
45 ≤ score < 50	D
Score < 45	E

(h) Hide all the columns containing score values and save the worksheet as 'Mock results 2'. (1 mark)

(i) Create a bar chart to compare students' mean scores and label the chart accordingly. (6 marks)

(j) Print the two worksheets and the bar chart. (3 marks)

30.23 COMPUTER STUDIES (451)

30.23.1 Computer Studies Paper 1 (451/1)

SECTION A

1. Input
   Process
   Control
   Storage
   Output
   Any 2@½ (2 marks)

2. (a) **Data communication**
   It is a term that describes the transmitting and receiving of data and/or signals data over communication links. (1 mark)
   (b) **Characteristics of an effective data communication system**
   - Accurate
   - Secure
   - Timely

   (2 marks)

3. Intra net is a company's internal network to which outsiders cannot get access to while Internet allows outsiders to access company network if proper security measures are not implemented.
   (2 marks)

4. Formulae are user designed expressions that create a relationship between cells and return a value in a chosen cell.
   While a function is an inbuilt predefined (hidden sub-program) that is found in a spreadsheet program.

   (2 marks)

5. :
   - Ensures that only authorized users access the network through logging in and out.
   - Restricts when and from where users can access the network.
   - Dictates which rules/protocols computers may use to communicate.
   - Supply application to users within a network. (4 marks)

6. :
   - Invoke the search and replace command button.
   - Insert appropriate words in the find and replace fields on the dialog box.
   - Create a space before and after each word in the two fields

   (3 marks)

7.

T	M	K
0	0	1
5	0	2
10	5	3

   M =5(1 mark) T=10 (1 mark)
   (3 marks)

8. They cannot be:
   - faked
   - guessed
   - hacked
   - delegated. Any 2 = (2 marks)

9. (a) **RAM**
   Holds data that is urgently need by the processor

(b) **Hard disk**

Used to hold large volumes of data that is not urgently required by the processor – also for back up of 0S and data. (2 marks)

10. **Telecommuting**:
    - Working form a remote place using a computer connected to the internet.
    - Screening patients requires direct interaction with the patients hence not the best. (2 marks)

11. :
    - Easy of communication
    - Easy of duplication
    - Enforcing is still a problem e.g officers are not computer literate.
    - Lack of capacity for people enforcing the law. (2 marks)

12. :
    - Prevents people from straining.
    - Table sizes allow all equipment to fit.
    - Optimization/utilization of room space. (2 marks)

13. (a) **Main document**:
    - Part of the document which appears in every mail document.

    Purpose
    - Hold fields where information from the table is to appear. (2 marks)

    (b) **Data source**:
    - It's a database/table

    Purpose
    - Hold records which are to be merged to the main document.(2 marks)

14. **Shipping control**:
    - navigation.
    - loading and offloading.
    - docking
    - records management.
    - communication. (3 marks)

15. **System analyst roles**
    - Make an appraisal of the information needed of the firm in some area defined by management and specify the information which is required to meet the current and expected needs of the firm.

    Programmer roles:
    - To advise the senior systems analyst on the feasibility and efficiency of the proposed program suit and when required to assist in it's design.
    - To construct a new system based on the requirement as specified by the systems analyst.

    Any role (1 mark)

    Or

    Network Engineer roles:
    - Responsible for planning designing and implementation of appropriate network between the three plans as specified by the systems analyst.

    Any role (1 mark)

16. (a) **Disadvantages of machine level language**
    - It is time consuming to develop
    - It's easy to make mistakes because only O's and 1's are used.
    - Program written for one computer model may not run on another computer model.

(b)

- Start/Stop.
- Computing average.
- Assigning the grades.
- Statement in the decision box.
- Printing.
- Looping (initializing, testing). (10 marks)

(c) (i)
```
<DA 105
SUB  40
ADD 20
```
} 2nd generation

(ii)
```
10000110  1111101
01111000  0001100
```
} 1st generation

(iii)
```
For x = 1 to 10
  Print x
  Next x
```
3rd generation (3 marks)

17. (a) (i) Activities (system implementation)
- File converion system change over.
- Training, construction, installation.

(ii) System construction stage.
- Coding
- Module testing

(b) System maintenance stage is necessary
(i) Correct the errors that may have escaped during the design.
(ii) To meet the changes in technology.
(iii) Changes in government policy.
(iv) Changes in operating environment e.g. the system evolving (e.g when a, newer version of software is released). (Any 3(1 mark each)

(c) **Observation not viable method of gathering information**:
- Distance = when data is to be collected from a far place.
- If the people to be observed must be aware that they are being observed.
- When the situation is risky for the observer. Any 2 (1 mark)
-

(d) **Input design**:
- Data capture method.
- Input interface, between user and the system e.g. form.
- Volume of input.
- Frequency of input. (2 marks)

Output design
- Form of output designed e.g. hard/soft copy.
- Output layout.
- Purpose of output. (2 marks)

(e) **Other strategies other than system construction:**
- Constrained by time.
- Constrained by cost
- Constrained by human resource.
- Legal requirements.

(2 marks)

18. (a) **Field property**:
- Specifies details related to fields and table entries expected e.g. field size, format, decimal places etc.

(b) (i) (I) Patients No. - Data type - Text
Reasons – it combines both numeric and alphanumeric characters.
(II) Date - Date type - Date
Reason – Data type can be manipulated mathematically, e.g number of moths can be calculated between two dates.
(III) Amount paid – Data type - Currency/Numeric
Reason – it can be manipulated mathematically.
(IV) Remarks – Data type – Memo
Reasons – the content may be lengthy e.g. giving a paragraph.
(8 markis)

(ii) Appropriate primary key on the table
- Patient No.

(iii) Purpose of primary key
. Identify each of the records in the database
. Useful when you want to create a relationship between more than one table.
. Makes access to database records faster e.g. when sorting.
(2 marks)

(iv) Create a query
Apply the criteria on the date field.
Giver the criteria date registered >09/08/06

19. (a) (i) **Password**
- It's a string of characters entered by a user to verify his or her identity.
- The system compares the code against a stored list of authorized users. If the user is legitimate then the system allows the user access.
(2 marks)

(ii) **User level access**
- It's a mechanism for limiting access to certain items of information or to certain control based on user identities and their membership in various predefined groups.

(b) **Characteristics of a suitable password**
- Easy to remember
- Should have appropriate length
- Hard/difficult to guess

(c)
- Slow or not booting.
- Files not opening.
- Functionality of some application failing.
- Files or data getting lost.
Any 2 x 1 = (2 marks)

(d) (i) **Naming the parts**
- A – Sender/terminal
- B – Digital waveform
- C – Modem
- D – Analogue waveform.

(ii) **Advantages of fibre optic over satellite**
- Cost.
- Supports broadband communication.
- Signal is directed and therefore e secure.
- It's minimal to raise interference e.g. noise. (2 marks)

20. (a) $9_{10} = 1001_2$ Im conversion
001001 1m in six bits
$-9_{10} = 110110$ 1m

(b) (i) ASCII, BCP, EBCDIC, Extended ASCII

Any 3 x 1 = (3 marks)

(ii) A: $1010010_2 = 82_{10}$ 1m

Decimal code = 82 – 14 1 m

$= 69^{th}$

$=1000101_2$ 1m

B: ASCll 1 m

Reason: The coding scheme is utilized using seven bits. lm

↓

C: $54 = 11011_2$ lm

$29 = 11101_2$ lm

COMP (29) = 00011101

11100010

+1

11100011

ADD = 00110110

11100011

100011001_2 lm

Overflow bit – ignored

$0011001_2 = 25_{10}$ lm

30.23.2 Computer Studies Paper 2 (451/2)

MARKING SCHEME (DATABASE)

1. (a) Creating a database — 1
Correct name — 1
2 marks

(b) Two tables — 1
Each table ½ marks — 1
- Primary key (1 table) 3 fields — 3
- Fields (2nd Table) — 4

9 marks

(c) Relationship

- Correct relationship — 1
- Choosing correct table — 1
- Enforcing the relationship — 1

3 marks

(d) Creating two forms
Each table 1 mark — 2 marks
- Existence of fields
  Table 1 – 3 fields each ½ — 1½
  Table 2 – 3 fields each ½ — 1½
- Naming each form 1 marks — 2

7 marks

(e) Each tenant record (Form) ½ x 6 records — 3
Each payment record (Form) ½ x 12 records — 6
9 marks

(f) Presence of report — 1
Appearance correct (fields)
Name, Month, Amount } 1 each — 3

Sum January, February, March — 1
Grand total — 1
Report name (saving) — 1
Title name — 1
8 marks

(g) (i) Presence of correct query — 1
Presence of fields (name, Amount, Month)
In the query — 1
Correct criteria — 1
Saving query — 1
4 marks

(ii) Report — 1
Data source (query) — 1
Name of report (saving) — 1
Title of report — 1
4 marks

(h) Printing 2 tables
2 reports } 4 marks

SPREADSHEET

2. (a) Entering the data

- Each column 8 x 1 each — 8 marks
- Entering labels (name, subject, Admission) — 1
- Sawing workbook "Mock result" — 1 mark

10 marks

(b) Calculate

- Total marks (correct formula & application) — 2
- Average marks " " " — 2

4 marks

(c) Using function to obtain mean mark

- Use of correct function — 1
- Correct range — 1
- Application on other cells — 1

3 marks

(d) Count If function

- Applying the function — 1
- Correct range — 1

2 marks

(e) Formatting

- Boarders (single line) — 1
- Subject heading (acquired 90°) — 1
- Merging cells (Subject) — 1
- Average marks (2 decimal) — 1

4 marks

(f) Maximum & minimum marks (each subject)

Correct formula (maximum) — 1
Applying to other cells — 1

Correct formula (minimum) — 1
Applying to other cells — 1

4 marks

(g) If function

Copying to sleet 2 — 1
Inserting ^{6}columns (½ x 6) each — 3
Formula grade (1 mark each selection) — 5
Copying formula to other cells — 1
Inserting label (column) ½ x 6 — 3

13 marks

(h) Hiding cell — 1 mark

(i) Chart (Bar)

- Selection range (x,y) axis	2
- Chart title	1
- Right chart(Bar)	1
- Labels x & y axis	2
	6 marks

(j) Printing worksheet 1
Worksheet 2 } 1 each — 3 marks
Bar Chart