

COMPUTER STUDIES

PAPER I MARKING SCHEME

1. State three functions of the control panel

- Installing a program
- Installing a new hardware
- Changing the regional settings
- Creating and securing user accounts
- Updating the computer drivers
- Adjusting the monitor settings

Award 1 mark each max 3

2. Use the passage below to answer the questions that follows

Oral literature is a broad term that includes: epics, folklore, proverbs, folksongs, oral poetry, jokes, myths, ritual chants, spells, legends, riddles, tongue-twisters, word games, recitations and word games. *Broadly it refers to any form of verbal art that is transmitted through word of mouth.*

Jane Nandwa and Austin Bukenya (1993) describe oral literature as:

“Those utterances whether spoken, recited or sung whose composition and performance exhibit to an appreciable degree the artistic character of accurate observation, vivid imagination and ingenious expression.”

When used in a piece of writing, oral literature in its various genres creates the effect of livening up the story and giving it an identity besides other functions such as capturing the audience's attention and stressing important points. These effects of orature are portrayed vividly in Okot P' Bitek's novel “**White Teeth**.”

(a) Mention three paragraph formatting features used in the passage above

- Drop cap
- Indent
- Alignment
- Line spacing
- Character spacing

Award 1 mark each max 3

(b) With an aid of examples describe three text formatting features applied in the above passage

- Bolding making the character darker than other characters in the document like **White Teeth**
- Underline is placing a line beneath a line of texts like Jane Nandwa
- Italicizing making a text to slant forward for example *Broadly*

Award 1 mark each max 3

3. As regards to communication within computer network, what do you understand by the following terms

(i) Point –to-Point

- This is a type of communication where the communicating devices are directly linked to one another

(ii) Broadcast

- A single message is delivered to all the nodes in a network

Award 1 mark each max 2

4. Describe three components of video conferencing

- Internet connectivity provide a path for sending signals to participants in remote sites
- Camera input device that capture data and presentation
- Speaker output device that project the sound
- Microphone input device that fed the system using audio signals

- Software a set of introduction provide a platform for compatibility and ensuring that there is smooth communication within the system
- Communication Terminal this can be inform of a computer, tablet and mobile phone

Award 1mark each max 3

5. With reference to Desktop publishing describe the following terms

(i) Gutter

- The inside margins closest to the spine of a book or the blank space between two facing pages in the center of a newsletter or magazine is known as the gutter. The gutter space includes any extra space allowance needed to accommodate the binding of books,

(ii) Stroke

- Refer to a line style



Accept the diagram with the outline pattern

Award 1mark each max 2

6. Linda does not understand why computers are said to be **Automatic** at the same time they have No Intelligent Quotient (IQ)

- Auto is short for automatic, which is a term used to describe anything that happens without user interaction
- NO IQ because a computer purely depend on the installed program without the programs the computer cannot any task

Award 1mark each max 2

7. State the difference between private university and public university

- Private university refer to universities owned by individuals, Churches and None governmental organizations while Public University is established by the government and it is run by government appointed team of managers

Award 2marks max 2

8. Ronaldo a student from Lenana School lives in a house with full internet access. She spends most of her time on phone and Desktop computer. State any three social issues associated with doing this

- Dehumanization
- Internet addiction
- Access to inappropriate content
- Flaming
- Intrusion to private information through hacking and cracking
- Drug trafficking
- Cyber terrorism

Award 1mark each max 3

9. Mention three factors to consider when choosing a file organization method

- Storage media
- Method of access
- Frequency of update
- File activity

Award 1mark each max 3

10. Give two reasons to justify why many computer users today prefer saving their documents in the google drive

- Google drive more secure
- The content of the google drive can be access anywhere provided there is internet connectivity
- Mass storage

Award 1mark each max 2

11. Computerization and automation are the great innovations of the 21st century. Describe how introduction of computers in the work place affected the job market

- Job creation introduction of computer in the work place have created new job opportunities that used not to exist like System Analyst, Programmer, Software Engineer, Computer Trainer etc.
- Job displacement here an employee is moved to another section or department

- Job replacement introduction of computer in the workplace have rendered some people jobless since the computer is used to perform task that they use to do and therefore they declared redundant and their services are no longer required by the organization

Award 1mark each max 3

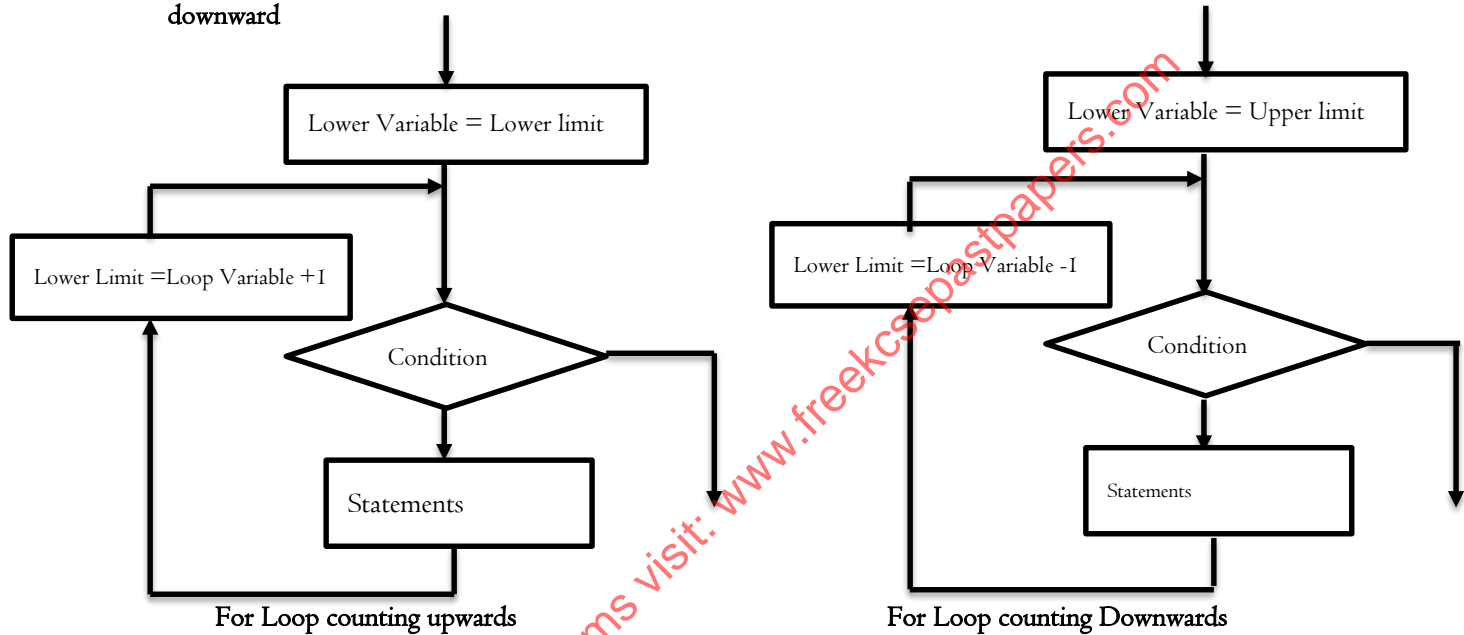
12. Describe three challenges affecting eLearning in most schools in Kenya

- High initial cost
- Lack of internet connectivity
- Lack of ICT infrastructure
- Lack standard
- Inadequate ICT skills

Award 1mark each max 3

13. Use illustrations to explain two ways of implementing FOR loop

The for loop is used in circumstances where the execution of the chosen statements has to be repeated a predefined number of times. For loop can be implemented in two ways that is For loop that count upwards and the one that counts downward



Award ½ each for the correct diagram and 1mark for the explanation of For loop

14. Explain the function of the following as used in data security and control

(i) Patches

- Patches are software and operating system (OS) updates that address security vulnerabilities within a program

(ii) Firewall

- A Firewall is a network security device that monitors and filters incoming and outgoing network traffic based on an organization's previously established security policies.

Award 1mark each max 2

15. The office has a fast internet connection for transferring information. However sometimes the internet run slowly. Give two reasons why this could be the case

- High network traffic
- The distance from the router
- Device protocol and setup

Award 1mark each max 2

16.

(a) Describe the following qualities of an algorithm

(i) Definiteness

- Each step of an algorithm must be precisely defined; the actions to be carried out must be rigorously and unambiguously specified for each case

(ii) Finiteness

- An algorithm must always terminates after a finite number of steps

Award 1mark each max 2

(b) State three differences between Assembly language and Machine language

- Machine language is written in binary logic while Assembly language represent program instructions using mnemonics
- Machine language doesn't require translation since machine codes are in a form that the computer directly understand while Assembly codes must be translated to machine readable using assembler
- Machine codes cannot easily be understood by human while Assembly language codes can easily be read, write and maintain

Award 1mark each max 3

(c) Study the Pseudo code below and use it to answer the question that follows

Start

COUNT =0

S=14

T=20

REPEAT

READ R

IF R>S THEN

 S=R+T

 T=R-S

ELSE

 S=T-R

 T=R+S

ENDIF

PRINT R, S, T

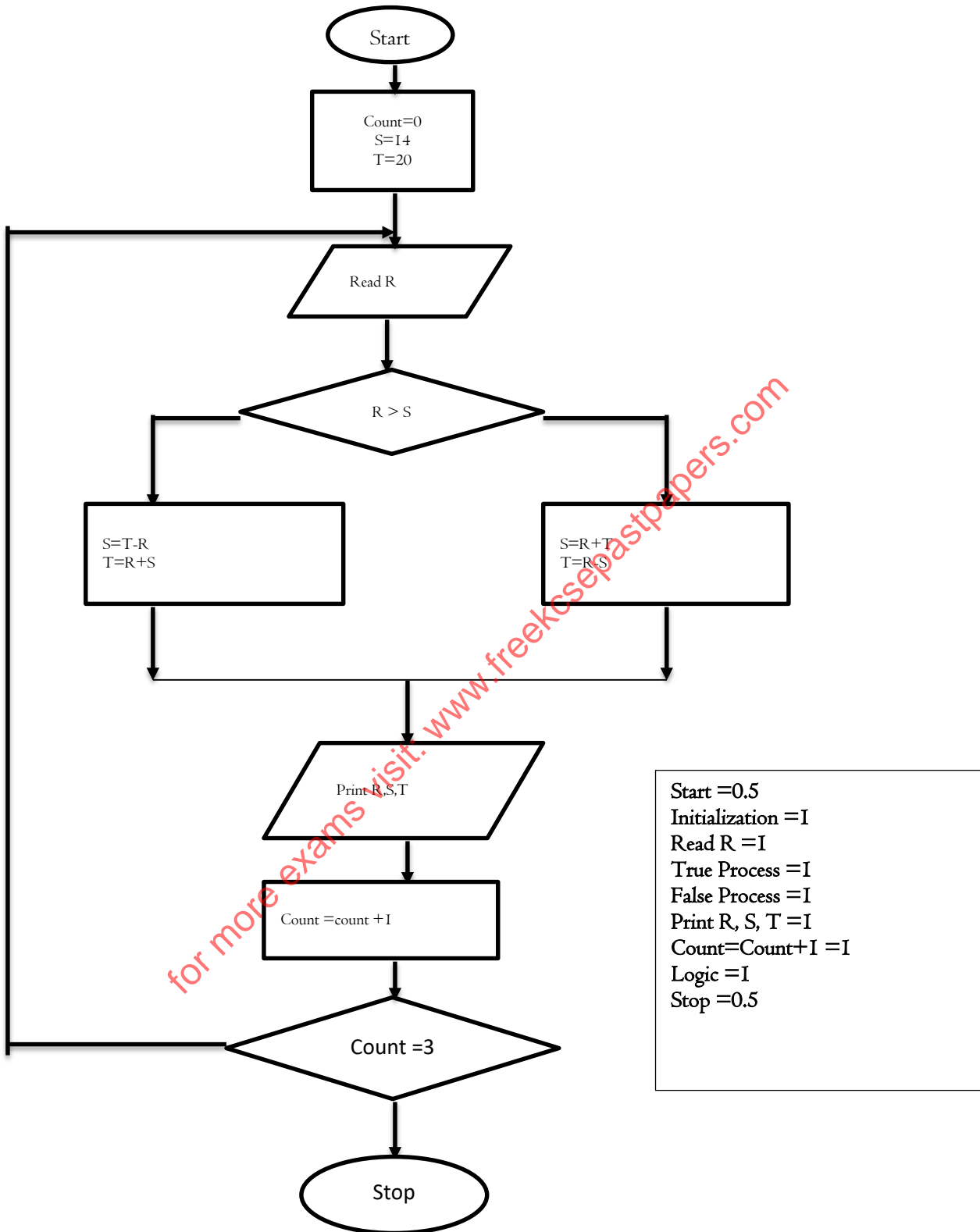
COUNT =COUNT +1

UNTIL COUNT =3

Stop

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(i) Draw a flowchart for the above algorithm using a Repeat.... Until



17.

(a) Study the table below and answer the questions that follow

	A	B	C	D	E	F	G
I	Student Name	Math	English	Computer	Total	Average	Grade
2	James Pesa	24	22	52			
3	Maureen Kamau	60	17	71			
4	James Jared	24	41	10			
5	Mary Anna	52	63	81			
6							

(i) Write down the formula that

(a) Calculate the total marks for Maureen Kamau

- =Sum(B3:D3)
- =B3+C3+D3

Award 2marks max 2

(b) Calculate the total marks for students with more than 50 and above in Maths

- =Sumif(B2:B5,">=50")

Award 2 marks max 2

(c) Get the mean score for Computer

- =Average(D2:D5)

Award 2 marks max 2

(ii) The grading system is shown in the table below. Write a function that will assign grades as reflected in the table below

Average	Grade
80 - 90	A
70 - 80	B
60 - 70	C
50 - 60	D
0 - 49	E

=IF(G2>=80,"A",IF(G2>=70,"B",IF(G2>=60,"C",IF(G2>=50,"D","E"))))

Award 1 mark for correct function Name 2marks for bracket to bracket

(iii) Write a formula using named reference that counts the total number of students who have scored more than 50 in computer

- Let the range D2 to D5 be given a name over90
- =countif(over90,">50")

Award 1 mark for named reference, correct function name ½ and ½ for bracket to bracket

(b) Describe three features that make spreadsheet application suitable for mathematical applications

- Inbuilt formula
- Automatic recalculation
- Spreadsheet layout which is in row and columns

Award 1mark each max 3

(c) A formula = B\$2+\$C2 was typed in cell C2 the copied to cell C3 and the finally to D3. State how the formula will appear in D3 (1mark)

= C\$2+\$C3

Award 1mark max 1

18.

- (a) What is the binary equivalent of $24\frac{12}{32}$ base 10

24.375

24 = 11000

0.375 x 2 = 0.75

0.75 x 2 = 1.5

0.5 x 2 = 1.0

11000.011₂

Whole number 1

Fraction part 1

Answer 1

- (b) Convert 5BA2H to Binary

5 = 0101

B = 1011

A = 1010

2 = 0010

010110110100010

Getting binary equivalent $\frac{1}{2}$ max 2

answer 1

- (c) Using 8-bits two's complement subtract 19₁₀ from 14₁₀

14 + (-19)

00010011

11101100 + 1 = 11101101

0001110

1111011

Binary equivalent $\frac{1}{2}$ max 11C $\frac{1}{2}$ 2C $\frac{1}{2}$

Answer 1

- (d) Given that the left most digit is a sign bit work out the decimal equivalent of the following binary numbers

- (i) 00111010110₂

8 7 6 5 4 3 2 1 0

1 1 1 0 1 0 1 1 0

Assign place value 1

addition 1

256 + 128 + 64 + 16 + 4 + 2 = +470

Correct with a sign 1

- (ii) 10100111010₂

10 9 8 7 6 5 4 3 2 1 0

1 0 1 0 0 1 1 1 0 1 0

Assign place value 1

Addition 1

1024 + 256 + 32 + 16 + 8 + 2

-1338

Correct with a sign 1

- (e) Describe two coding schemes used by computers to represent data in a computer

- American Standard Code for Information Interchange (ASCII) represent both numeric and non-numeric characters using 7 bits and can represent up to 128 characters
- Extended Binary Coded Decimal Interchange Code (EBCDIC) represent both numeric and non-numeric characters using 8 bits. Maximum number of characters that can be represented is 256
- Binary Coded Decimal (BCD) represent numeric characters only using 4 bits

Award 1 mark each max 2

19.

- (i) Study the tables shown below and use them to answer the questions that follow

Table 1

Admission No	Name	Guardian ID	Date of Birth	Class	Hall	County
0978	Peter Kilulu	P0023	12-12-1999	Form Three	Moi	Kiambu
4678	John James	P0045	07-08-1999	Form Two	Kenyatta	Muranga
6754	Luke Kenya	P0023	06-01-2000	Form One	Uhuru	Migori

Table 2

Guardian ID	Name	Address	Telephone	County
P0023	John Mayi	P.O Box 123 Kisumu	0723567453	Kisumu
P0045	Jerry Watu	P.O. Box 234I Nairobi	0745897654	Nairobi

- (a) Choose the most appropriate key field for Table 1 and 2

- Table 1 Admission No
- Table 2 Guardian ID

Award 1 mark each max 2

- (b) Identify the most suitable data types Admission No and Date of Birth

- Admission NO – Text
- Date of Birth –Date and Time

Award 1 mark each max 2

- (c) Describe how a relationship can established between Table 1 and 2

- Link Guardian ID in table 2 to Guardian ID in table 1 which is a foreign
- Relationship established will be One to Many
- A guardian can have many students

Award 1 mark each max 3

- (d) Write an expression to validate Date of Birth to allow dates that following in the year 1999 only (2marks)

`>=#01/01/1999# AND <#01/01/2000#`

Award 2marks max 2

- (ii) Peter Kipasi is the system analyst for Finaly group of companies. The Company Management automated their operations to have a competitive advantage over other companied in the same field. Peter received a memo from the CEO requesting him to consider changing the current information system. State what might have necessitated this (

- To exploit new opportunities
- The system have some problems
- Directives

Award 1 mark each max 3

- (iii) State three qualities of a good system analyst

- Good problem solving skills
- Good communication skills
- Technical skills
- Innovative and creative

Award 1 mark each max 3

20.

(i) Mention four limitations of computer networking

- High initial cost
- Security threat
- Network failure
- Spread of terrorism and drug trafficking
- Moral and cultural effects

Award I mark each max 4

(ii) Explain how fibre optic transmit data signal and yet the core can only allow light signals to pass through

- At the sending station data signals are converted to light signal using LED
- Data signals in form of lights are propagated along the cable
- At the receiving end the light signals are converted back to data signal using photodetector

Award I mark each max 3

(iii) State the function of the following Communication devices

(a) Router

- A router is a networking device that forwards data packets between computer networks.

(b) Switch

- Is a communication device used to connect nodes in a network and forwards the packets directly to the address node without broadcasting

(c) Bridge

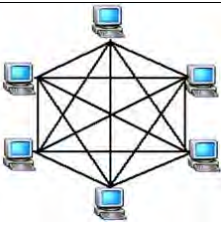
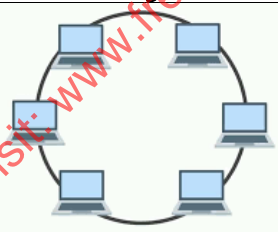
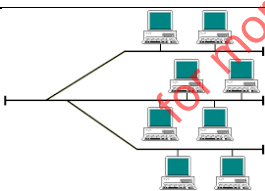
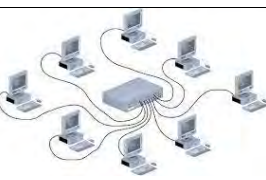
- A Bridge divide a network into segments to reduce network traffic

(d) NIC

- Create a physical link between the computer and the transmission media

Award I mark each max 4

(iv) Identify the Network topologies represented in the table (4marks)

Name: Mesh 	Name: Ring 
Name: Tree 	Name: Star 

Award I mark each max 4