

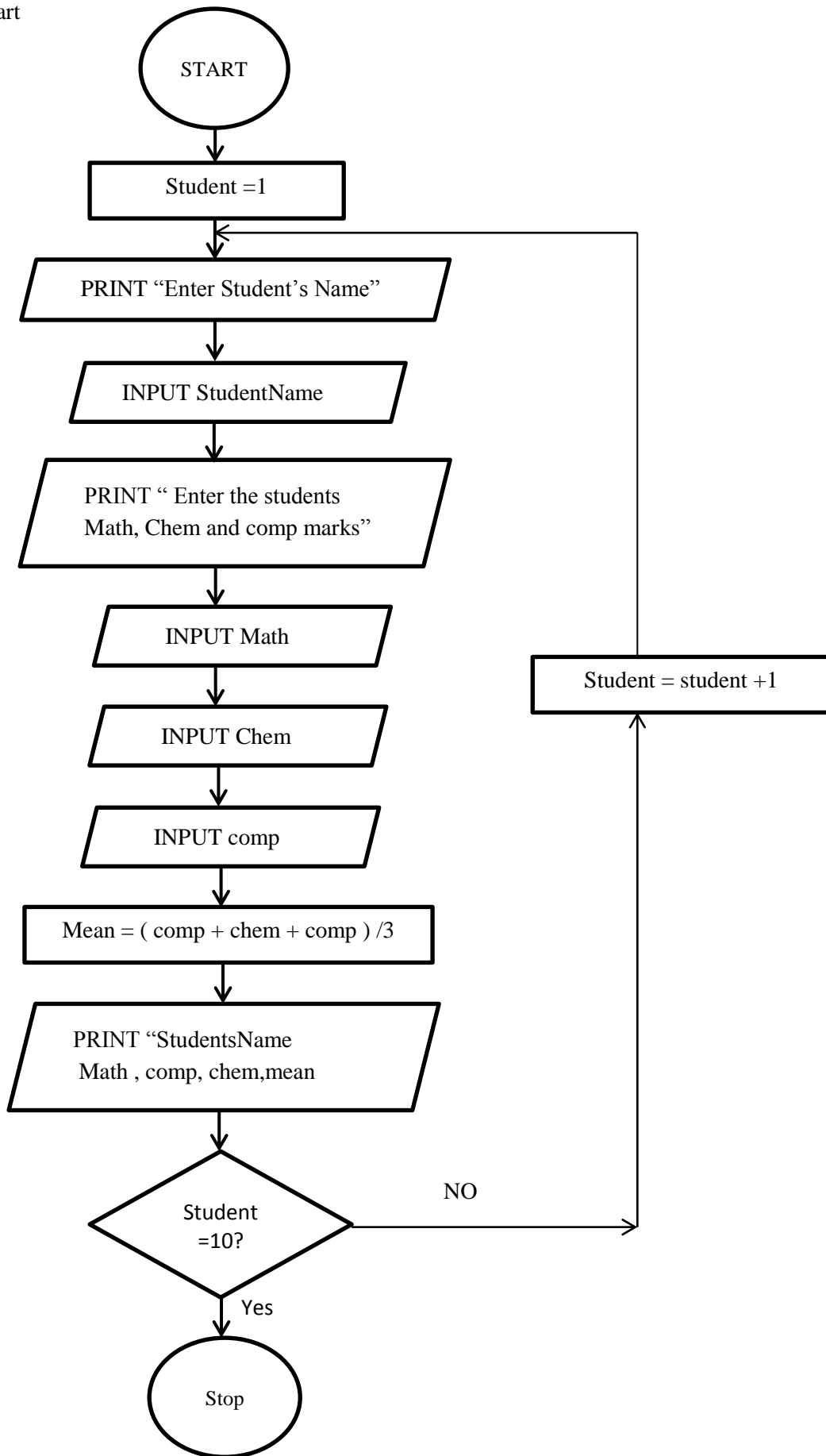
**MAKUENI COUNTY CLUSTER PREPARATORY EXAMINATION 2016***Kenya Certificate of Secondary Education (K.C.S.E.)***COMPUTER STUDIES****PAPER 1****Marking scheme**

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1. - Power fluctuation  
 - Computer virus infection  
 - Accidental deletion of files  
 - Improper shutting of the computer  
 - Disk crashing. (Any 2 correct @ 1mk = 2 marks)
  
  2. - Money fraud  
 - Identify fraud  
 - Dealing with fictitious suppliers. (Award 2 marks any 2 correct)
  
  3. a) Soft systems- human activity systems. (goals& objectives keep on changing)  
 Hard systems – systems whose goals and objectives are clearly defined and outcome is predictable.  
 (Award 2mks)
  
  - b) **Factors leading to system entropy:**  
 - Change in technology  
 - Change in policies  
 - Change of user requirements  
 - Legal requirements (Any 2 correct @ 1mk)
  
  4. a) Noise – are random unwanted signals collected by the transmission channel.(Award 1mk)  
 b) Multiplexing – sending multiple data signals through the same transmission channel simultaneously  
 (Award 1 mk)  
 c) Attenuation – Loss of signal strength and magnitude as it progressively travel over a transmission channel.  
 (Award 1mk)
  
  5. **Functions of network operator.**  
 - Set up computer network  
 - Maintain and enforce security measures  
 - Monitor the use of network resources  
 - Maintain and troubleshoot network related problems (Any 2 correct @ 1mk=2mks)
  
  6. a) Biometric analysis – is the study, measurement and analysis of human biological characteristics using a computer.  
 (Award 1mk)
  
  - b) **Two application areas of biometric analysis:**  
 - Identify criminals through electronic figure print regulation  
 - Profiling a crime scene through DNA analysis  
 - Authenticating people entering or leaving a building  
 - Face recognition at passport controls in airports. (Any 2 correct =2mks)
  
  7. (i) Direct approach  
 User simply stops old system and starts using the new one  
 (ii) Parallel approach  
 Old and new system are operated side by side until the new system has shown it is reliable  
 (iii) Phased approach  
 Parts of a new system are phased in separately either at different times or all at one in groups.  
 (iv) Pilot approach  
 Entire system is tried out but only by some users. (Any 4 correct = 4mks)
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8. - Rotating  
 - Skewing  
 - Reflecting (Any 2 correct =2mks)
9. - Creation  
 - Transmission  
 - Preparation  
 - Media conversion  
 - Input validation  
 - Sorting (Any 2 correct =2mks)
10. A page printer prints document page by page and it is very fast while a line printer prints documents line by line and is slower. ( correct difference = 2 marks)
11. Inbox – This is where all incoming emails that you have received are stored. (1mk)  
 Drafts – contains emails that are being worked on and are not yet ready to be sent. (1mk)
12. - The initial set up cost is high  
 - May lead to unemployment (2 correct = 2mks)
13. - Designs, develops and tests computer components  
 - Examines computer components and determines the power requirement of the components  
 - Refurbishing existing computer components to enhance their performance  
 - Design and develop computerized machines such as robots. (Any 2 correct 2mks)
14. Caps lock  
 Num lock  
 Insert key  
 Scroll lock  
 Pause key (any 4 correct = 2mks)
15. Back pain  
 Wrist pain  
 Body fatigue  
 Neck pain (3 correct 3mks)

**SECTION B**

16. Flow chart



Start/ stop	= 1mk
Data input	= 1mk
Output	= 1mk
Looping	= 2 mk
Logical sequence	= 2mk
Total 7 marks	

START

Set student =1

For student =1 to 10 Do

PRINT "Enter student name"

INPUT Student name

PRINT "Enter student's math, chem and comp marks"

INPUT math, chem, comp

Mean = (math +chem+comp)/3

PRINT Student name, math, chem, comp, mean

END FOR

STOP

Start/stop – 1mk

Input/output – 1mk

Looping – 2mks

Logical sequence – 1mk

c) **Qualities of a good pseudo code**

- Shows start and end of the execution of statements
- Input, output and processing statements are clearly stated
- The statements should not have more than one meanings
- It should have short, clear and readable statements. (Any 3 @ 1mk x3 =3mks)

17. a) **How the operating system control resources**

- (i) Processor – The OS assign tasks one by one to avoid competition
- (ii) Main memory – OS determine which task should occupy the main memory at any given time
- (iii) Input and output devices – the OS controls data input and information output

b) **Differentiate between**

(i) **Storage device and storage media**

Storage device – A computer hardware that facilitates writing and reading of information in the storage media in a format that the computer is able to understand and manage/manipulate.

Storage media – This is the actual surface where data is stored. The storage patterns and technology will differ from one media to another in accordance to the media being used. (Correct difference = 2mks)

(ii) **Primary memory and Auxiliary memory**

Primary memory store data or information temporarily while Auxiliary memory stores data permanently Primary memory accesses the processor directly while Auxiliary does not.

(Correct difference each 2mks)

c) **Items that should accompany the software.**

- i) Documentation to provide the user with both technical and operational information about the software.
- ii) Certificate of authenticity to avoid acquiring pirated copies which is an offence or may not function as Expected.
- iii) Installation
- iv) License (or other correct response @ 1mk x 2 = 2mks)

d) **List any four components of the system unit.**

- Microprocessor
- Main memory modules

- Mother board circuit
  - Power supply unit.
  - Hard disk
  - Disk drives
  - Input/output port
  - Expansion slots.
- (Any 2 @ 1mk x 2= 2mks)

e) **Considerations that you would consider when selecting a printer.**

- Compatibility with your computer
  - Printer speed
  - Print in colour
  - Quality of printout
  - Availability of consumables
- (Any 4 each 1mk = 4mks)

f) **What is an embedded computer?**

It is a dedicated computer that is attached to a machine to perform a specific task i.e. special purpose computer used inside another device.

(Correct definition =2mks)

18. a) (i) **What is cloud computing**

The practice of using a network of remote servers hosted on the internet to store, manage and rather than a local server or a personal computer.

(ii) **Benefits of cloud computing.**

- Automatic software updates
  - Improve accessibility - You can access anytime, anywhere
  - Disaster recovery - One can recover data incase it is lost in local computers
  - Security - Lost computers, you can still access your data
  - Cost saving (reduces capital cost on hardware and software)
  - Minimized licensing of new software - Does not need to purchase any new software.
- (Any 3 correct each 1mk = 3mks)

b) (i) **Describe this type of communication**

Video conference – it is whereby members of a particular group are able to hold meeting/discussions in real time mode though each individual is far apart geographically.

(Correct name = 1mk, correct description = 1mk)

(ii) **Advantages**

- It minimizes the travelling cost incurred by members
  - It does not require large room for holding meeting (save space)
- (Any 2 correct each 1mk)

**Disadvantages**

- Require that each member must have ICT equipment that may be costly.
  - There must be constant connection to the net for its effectiveness
- (any @1 mark)

c) **Advantages of digital technology over analog technology**

- There is quality in the image being transmitted
  - Digital transmission is cheaper than analog in terms of frequencies
  - It requires less equipment for its operation (one can give signal to a service provider for distribution.)
- (Any 3 correct each 1mk = 3mks)

d) **Impacts of ICT on employment protection agency (EAP)**

Job creation – new employment opportunities that never existed before

Job replacement – computer/literate people have been replaced with those who have desired computer skills

Displacement – employees moved to another department where computer skills are not required.

19. a) Name and state the functions of the features

- (i) A – Crop tool hide unwanted parts of a picture/graphic
- (ii) B – Rotate tool/rotate left to flip a picture left 90°

- (iii) C – Wrap text to change/ define the way text wraps around the selected object
- (iv) D – Brightness increase increases the brightness of a graphic  
(correct naming @ 1mk, correct function @ 1mk)

**b) Give three benefits of print previewing a document**

- The user is able to confirm the appearance of the document before printing
- It is possible to manipulate the margins while viewing the page
- It is possible to view all the pages of a document before printing. (Any 3 correct @ 1mk)

- c) (i) a) = sum (B5:E5) OR = B5+C5+D5+E5
- b) = Average (B4:E4)
- c) = max (B2:E2) (Each correct 1mk × 3)

(ii) = COUNTIF (E2:E6,">60") (2mks)

**(iii) Functions of the following types of charts**

- a) Pie chart – shows contribution of certain items to a grand total
- b) Line graph – shows the trends and checking changes of value over time
- c) Bar graph – it is used to compare values at given point in time (correct function @ 1mk×3=3mks)

20. a) Convert  $25.125_{10}$  to base 2

25		
2	12	Rem 1
2	6	Rem 0
2	3	Rem 0
2	1	Rem 1
2	0	Rem 1
=11001 <sub>2</sub> 1mk		

Fraction        -  $125 \times 2 = 0.250$   
                   -  $250 \times 2 = 0.500$   
                   -  $500 \times 2 = 1.00$   
 Read from above = 001<sub>2</sub> 1mk

Combine = 11001.001<sub>2</sub> 1mk

b) Convert  $101.11110_2$  to base 10

Place value	$2^2$	$2^1$	$2^0$	•	$2^{-1}$	$2^{-2}$	$2^{-3}$	$2^{-4}$	$2^{-5}$
value	1	0	1	•	1	1	1	1	0

$(4 \times 1) + (2 \times 0) + (1 \times 1) + (1 \times 0.5) + (1 \times 0.25) + (1 \times 0.125) + (1 \times 0.0625) + (0 \times 0.03125)$  ✓ 1mk  
 =  $4 + 1 + 0.5 + 0.25 + 0.125 + 0.0625 + 0$  ✓ 1mk  
 =  $5.9375_{10}$  ✓ 1mk

c) Using one's complement work out  $14_{10} - 9_{10}$  (leave your answer in base 2)

14 = 00001110 ✓ 1mk  
 9 = 00001001 = ones complement = 11110110 ✓ 1mk

Add

	00001110
	<u>11110110</u>
	(1)00000100 ✓ 1mk
Overflow a bit ←	1 +
	<u><u>101</u></u> ✓ 1mk

d) Use Two's complement to work out  $11000_2 - 111_2$   
 =  $11000 - 00111$

$$\begin{aligned}
 \text{One's compliment} &= 11000 \\
 &\quad 1 + \checkmark 1mk \\
 \text{Two's compliment} &= \underline{11001} \checkmark 1mk \\
 \text{Add the numbers} &= 11000 \\
 &\quad \underline{11001} + \\
 &\quad (1) 10001 \checkmark 1mk \\
 &\quad \text{Ignored the overflow bit} \\
 &\quad = 10001_2 \checkmark 1mk
 \end{aligned}$$

Assuming the existence of base 6, list the numbers in the number system.

0, 1, 2, 3, 4, 5

(All the numbers correct @ 2mks)