

Term 2 - 2022  
COMPUTER STUDIES  
(MARKING SCHEME PAPER I)  
FORM FOUR

Name: ..... Adm No: .....  
School: ..... Class: .....  
Signature: ..... Date: .....

1. Mention two devices that can connected to the computer via HDMI cable

- *Projector*
- *Digital camera/camcorder*
- *Monitor*
- *DVD , Blu-ray and Ultra HD player*
- *Game consoles*

*Award 1 mark each max 2*

2. State three ways in which ICT can be used to enhance customer service delivery in a supermarket

- *Through ecommerce customers can easily placing orders without visiting the supermarkets*
- *Electronic payment platforms can be used to settle bills which is safe and efficient*
- *Electronic points of sale terminal help in serving the customers very fast and also generate very accurate bills*
- *Supermarket websites contain information which customers can easily access through the internet which help in creating customer awareness*

*Award 1 mark each max 3*

3. Describe two roles of a Web designer

- *Develop and test websites*
- *Enforce security measure in a website*
- *Update and modify the content of the website to ensure that it contains the most current information*

*Award 1 mark each max 2*

4. Mr. Kamau is a teacher at Chianda High School used Ms-Excel to process the marks obtained by his student during the term. The table below shows the details entered in the Ms-Excel worksheet

	A	B	C	D	E	F	G	H	I
1	Name	CA T1	CAT 2	CAT TOTAL	EXA M	TOTAL MARKS	POSITI ON	GRA DE	REMA RK
2	Mark Jama	14	06	20	56	76	1		

3	Caleb Wekeza	13	08	21	34	55	6		
4	Kanini Mulue	10	04	14	59	73	3		
5	Justine Melanie	11	07	18	57	75	2		
6	Julia Wahome	06	09	15	48	63	5		
7	Austin Kilome	08	07	15	50	65	4		

Hints

**CAT1 is out 15, CAT2 is out 15 and Exam is out 70**

(a) Give the formula used to calculate the Total Marks for Julia Wahome

- **=D6+E6**
- **= B6+C6+E6**
- **=Sum(B6,C6,E6)**

*Award 1 mark max 1*

(b) Write a function that give each student his position in class based on the performance

- **=Rank(F2, \$F\$2:\$F\$7,0)**

*Award 1 mark for Function, Bracket to Bracket 1 mark*

(c) Write a logical function that will display the following remarks in column I

Total Marks	Remark
0 - 49	Fail
50 - 59	Above Average
60 - 69	Fair
70 - 79	Good
80 - 100	Excellent

- **=IF(F2>=80, "Excellent", IF(F2>=70,"Good",IF(F2>=60,"Fair", IF(F2>50, "Above average", "Fail"))))**

*Award 1 mark for function, Bracket to bracket 1*

5. Give two reasons to justify why SATA cables are used in modern computers to connect the hard disk to the motherboard

- *SATA support fast data transmission*
- *Small in size*
- *Support multiple drives*

*Award 1 mark each max 2*

6. Give three file systems supported by windows operating system

- *File Allocation Table (FAT32)*
- *New Technology File System (NTFS)*
- *Extended File Allocation Table (extFAT)*

*Award 1 mark each max 3*

7. Describe the use of the following keys found on a standard keyboard

(a) Esc

- *Interrupt or cancel the current process or running programs or to close a pop-up window*

(b) Prt sc

- *Send a current screen image to the clipboard /take current screenshot*

*Award 1 mark each max 2*

8. Explain the following terms with references to algorithm

(a) Definiteness

- *Steps or statement in the algorithm must convey one meaning*

(b) Finiteness

- *An algorithm must start at one point and also terminates after a number of logical steps*

*Award 2 marks each max 4*

9. Mention two ICT related courses offered in Kenyan universities at undergraduate level

- *Bachelors of Computer Science*
- *Bachelors of Information Technology*
- *Bachelors of Business Information Technology*
- *Bachelors of Computer Security and Forensic Studies*
- *Bachelors of Computer Technology*
- *Bachelors of Software Engineering*

*Award 1 mark each max 2*

10. What is flaming

- *Refer to write on-line messages that use derogatory , obscene or dirty language*

*Award 2 marks max 2*

11. A computer operator was working with a computer using windows operating system. After sometimes he started experiencing the following problems

- Abnormal restarting
- Computer failing to load the operating system
- Computer hangs
- Computer displaying Fatal Exception error on the screen

State three possible causes of the problems mentioned above

- *Hardware conflicts*
- *Missing system failures due to improper installation of the operating system*
- *Insufficient memory*
- *Corrupt system registry/ Virus infection*
- *Due to interrupt request conflicts*

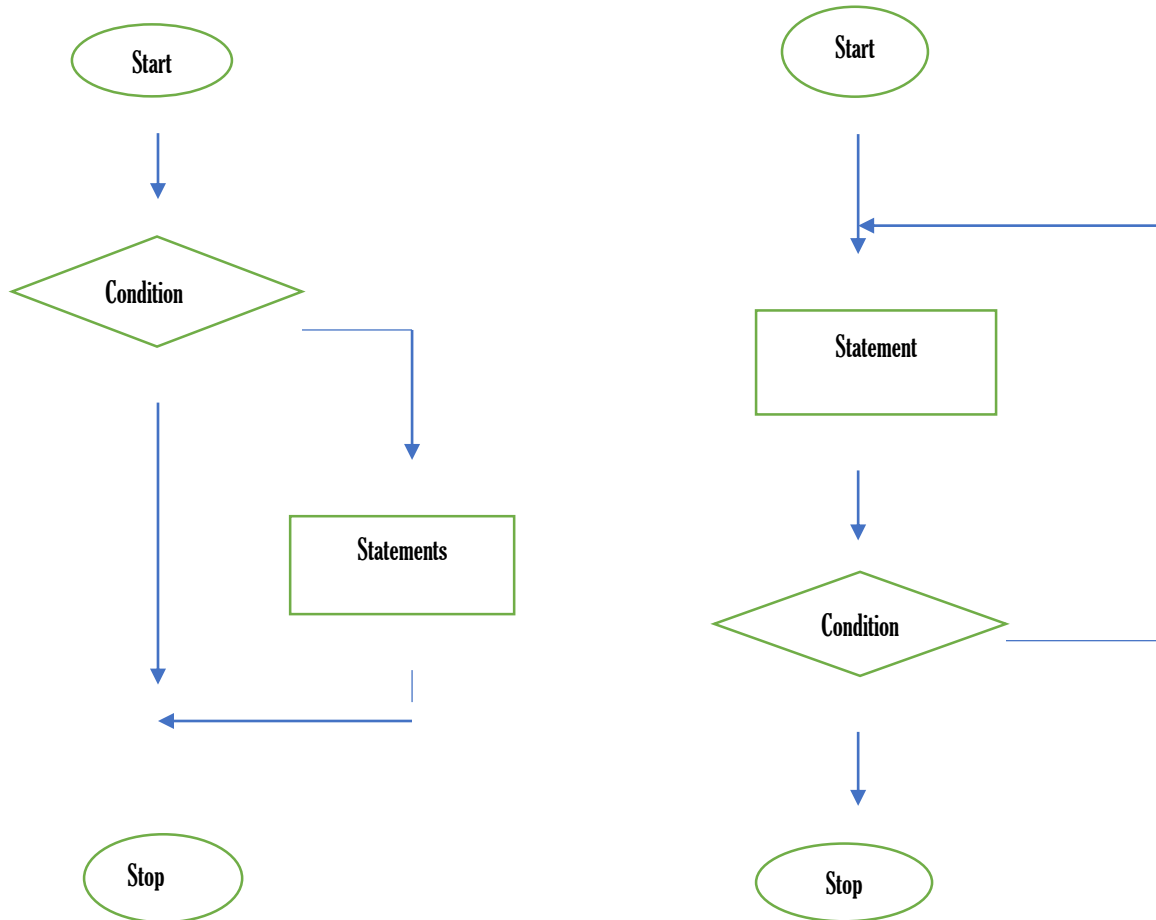
*Award 1 mark each max 3*

12. Identify two limitations of traditional approach to system development

- *No formal documented methodology*
- *May take a longer period to deliver a system*
- *It difficult to make decision especially where some many people are involve in the development process*

*Award 1 mark each max 2*

13. Use flowchart to demonstrate how IF THEN and REPEAT..... UNTIL can be implemented



*Note that the flowchart symbols must correct and well labelled*

*Award 1 mark each max 2*

14. State three functions of Repeater stations in data communication

- ***Clean the signals***
- ***Amplify the signals***
- ***Retransmit signals***

*Award 1 mark each max 3*

15. Describe three layout guides available in DTP that assist a user to place an object in a preferred position

- ***Ruler guides: a ruler on the edges of the page that guides a user to position objects and resize them***
- ***Margin guides: used to define page margins so that the user will be prevented from placing objects in non-printable areas of the page***
- ***Column guides: Vertical lines used to divide a page into two or more columns***
- ***Row guides: Lines used to divide a publication page into two or more section to help structure the layout***
- ***Snap points: Positions on the screen where the object is stuck on***

16.

(a) State three features of a compiler

- ***Convert the entire source into machine***
- ***Store the object code***
- ***Report all the error in a source code***

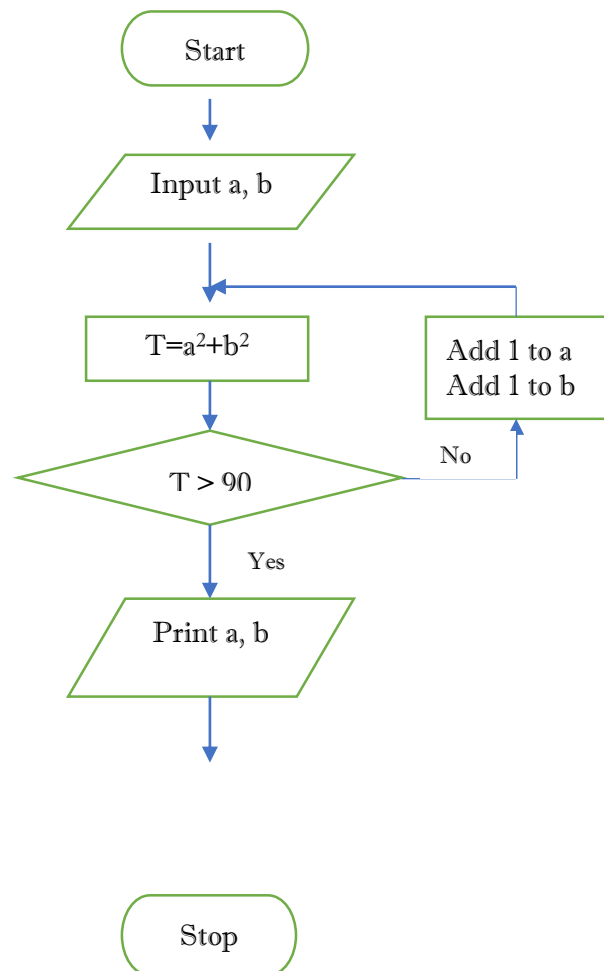
***Award 1 mark each max 3***

(b) When writing a computer program programmers are always advised to use approaches and techniques that makes the program easy to follow and maintain. List four ways in which a programmer can make program code easy to follow

- ***Internal documentation/ Use of comments***
- ***Code indentation***
- ***Correct use of reserved words/Keywords***
- ***Proper punctuation***

***Award 1 mark each max 4***

(c) Study the flowchart below and use it to answer the questions that follow



- (i) Given that the user keyed in 3 as the value of a and 1 as the value of b get the final output of the flowchart

A	B	T
3	1	10
4	2	20
5	3	34
6	4	52
7	5	74
8	6	100

**Award ½ mark for each step max 3**



- (ii) Use a pseudo code to represent the flowchart in (c)

**START**

**Input  $a, b$**

**Repeat**

$$T = a^2 + b^2$$

$$a = a + 1$$

$$b = b + 1$$

**Until  $T > 90$**

**Print  $a, b$**

**STOP**

*Start/Stop @ ½ mark*  
*Input, a, b @ ½ mark*  
*Repeat @ ½ mark*  
 *$T = a^2 + b^2$  @ ½ mark*  
 *$a = a + 1$  @ ½ mark*  
 *$b = b + 1$  @ ½ mark*  
 *$T > 90$  @ ½ mark*  
*Print a, b @ ½ mark*  
*Logic @ 1 mark*

17.

- (a) Briefly describe the three main coding schemes

- **Binary Coded Decimal-** This a 4 bit coding scheme that represent numeric characters only. It can represent up to a maximum of 16 characters
- **Extended Binary Coded Decimal Interchange Code-** It is 8 bit coding scheme used to represent both numeric and non-numeric characters. Can represent up to a maximum of 256 characters
- **American Standard Code for Information Interchange –** It is a 7 bit coding scheme representing both numeric and non-numeric characters. It can represent up to a maximum of 128 characters

*Award 1 mark each max 3*

- (b) Convert the following numbers to binary number

(i) B2.AAH

$$A = 1010$$

$$B = 1011$$

$$2 = 0010$$

..... 1 mark

**Whole Number Part 10110010.** ..... ½ mark

**Fraction part.**

0. 101010<sub>2</sub> ..... 1/2 mark

10110010.101010<sub>2</sub> ..... 1mark

(ii)  $\frac{13}{64}$  base 10

$\frac{13}{64}$  Is the same as 0.203125 ..... 1mark

↓

0.203125 x 2	0.40625
=	
0.40625 x 2 =	0.8125
0.8125 x 2 =	1.625
0.625 x 2 =	1.25
0.25 x 2 =	0.5
0.5 x 2	1.0

0.001101<sub>2</sub> ..... 1mark

(c) The table below was created using Ms-Access use it to answer the questions that follow

Table Name: Product

Product ID	Product Name	Unit Cost	Quantity	Total
P00101	Milk	120	34	4080
P00201	Bread	100	56	5600
P00301	Beans	150	45	6750

(i) State the most appropriate data type for Product ID and Total

- **Product ID – Short Text/Text**
- **Total – Calculated**

*Award 1mark each max 2*

(ii) Suggest how you would set the input mask for the Product Name so that the data entered in that field appear the way they are in the table

- **Type >L<??????????????**

*Award 2 marks max 2*

- (iii) Represent the dynaset shown below in a SQL form given that the table Name is product (2marks)

Product ID	Product Name	Unit Cost	Quantity	Total
P00101	Milk	120	34	4080

***SELECT Product [ProuctID], Product.[Product Name],Product.[Unit Cost], Product.[Quantity]. Product.[Total]***

***FROM Product***

***WHERE (((Product.[Product Name])='Milk'));***

***Award Select ½ mark***

***From 1mark***

***Where 1 mark***

18.

- (a) Describe four services available in the internet that support communication only

- ***Email- it is a message transmitted electronically over the internet. The message can be text, video, audio or picture based***
- ***www. – Virtual storage in the internet where information is stored and made available to users. The information in a www can be accessed from anywhere provided there internet connectivity***
- ***Social media. - Web based site that allow people with common interest to share information, interest, activities and multimedia contents. They include Whattapps, Tweeter, Facebook etc.***
- ***instance messaging- Messaging service that allow two or more people to communicate directly***
- ***Fax – Involves the use of computer to send fax messages***

***Award 1 mark max 4***

- (b) Modern computing have embraced the use of drop box, google drive and OneDrive. These platforms are hosted by the internet and many computer users prefer backing up their data using these facilities. Give three reasons to justify this phenomenon

- ***Flexible in that it can be accessed from any point provided there is internet connectivity***

- *Mass storage*
- *Secure*
- *Back up and restoration*
- *Enhance collaboration and sharing of data*
- *Low maintenance cost*

*Award 1 mark each max 3*

(c) Janetitle a computer student from Maranda High school launched the browser to access the internet , the browser displayed an error message Server Not Found on the screen this didn't allow Janetitle to access the internet. State three possible causes of this anomaly

- *Bad internet connection*
- *Wrongly configured network settings*
- *Compatibility issues with app and antivirus*

*Award 1 mark each max 3*

(d) Briefly describe the following features of word processor

(i) Subscript

- *This feature allow the user to type a line of text slightly below the normal typing line*  
*Example CH<sub>4</sub>*

(ii) Drop cap

- *This feature is used to make the first character of a paragraph bigger than other characters in paragraph so as to capture the attention of the reader*

Janetitle a computer student from Maranda High school launched the browser to access the internet , the browser displayed an error message Server Not Found on the screen this didn't allow Janetitle to access the internet. State three possible causes of this anomaly

*Award 1 mark each max 2*

(e) State two arithmetic operation that can be performed on a row of a numeric data in a word processor table

- *Addition*
- *Multiplication*
- *Counting*

*Award ½ mark each max 1*

(f) In each case of (e) above give the expression used

- *=Sum (left)*
- *=Product (left)*
- *=Count (left)*

*Award 1 mark each max 2*

19.

(a) Enumerate four breakthrough in health care instigated by ICT

- *Telemedicine*
- *Laser surgery*
- *MRI*
- *CitiSCAN*

*Award 1 mark each max 4*

(b) Mention four application areas of Artificial Intelligence

- *Expert System*
- *Artificial Neutron Network*
- *Natural Language Processing*
- *Robotics*

*Award 1 mark each max 4*

(c) List three scanning devices available at Electronic Point Sale Terminal

- *Finger print scanner*
- *Card reader*
- *Optical Barcode Reader*
- *QR Scanner*

*Award 1 mark each max 3*

(d) Describe two ways of preventing eavesdropping

- *Encryption and decryption –Data that is on transit is changed in a form that cannot easily be read or interpreted. The conversion is done that the sending and receiving point*
- *Firewalls filters data and information exchange between different networks by enforcing network access control policy*

*Award 1 mark each max 2*

(e) System failure is considered as threat to data security. Describe three measures an organization should put in place to guard against system failure

- ***Regular system backup***
- ***Protect the computer from unstable power***
- ***Incorporate fault tolerant systems***

***Award 1mark each max 3***

20.

(a) Identify modes of data communication represented in (i), (ii), (iii) and (iv) below

(i) Principal Addressing students in assembly using public address system

- ***Simplex***

(ii) WhatsApp chat

- ***Duplex***

(iii) Phone conversation

- ***Full Duplex***

(iv) Walkie talkie conversation

- ***Duplex***

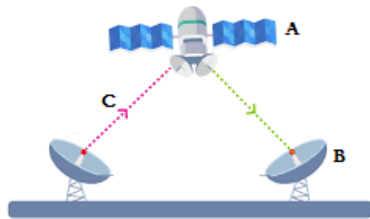
***Award 1 mark each max 4***

(b) List three challenges experienced by computer networks that are set up using twisted pair cables

- ***Suffer from high attenuation***
- ***Sensitive to electromagnetic interference and eavesdropping***
- ***It has low data transmission rates***

***Award 1 mark each max 3***

(c) Study the diagram below and use it to answer the questions that follow



(i) Identify the parts labelled A, B and C in the diagram above

- ***A - Satellite***
- ***B – Receiving Earth Station***
- ***C—Uplink Communication***

*Award 1 mark each max 3*

(ii) State function of the part labelled A

- ***Receives , amplify and retransmit the signals to the receiver earth station***

*Award 2 marks max 2*

(d) Name any three components of virtual reality

- ***Headgear***
- ***Glove***
- ***Body suit***
- ***Virtual reality software***

*Award 1 mark each max 2*