**FORM 4 END OF TERM 2 EXAMINATION**

**451/1 COMPUTER STUDIES**

**MARKING SCHEME**

**451/1**

**MARKING SCHEME**

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| **Qn** | **Answers** | **Marks** |
|  1  | . i Explain the emerging trends in microcomputer technology in relation to Size **-P PCs are becoming small and portable, e.g. personal Digital Assistant (PDA)** |  1 |
| ii |  **Name four categories of input devices** * *Keying in devices*
* *Pointing devices*
* *Scanning devices*
* *Automated method*
 | 2 |
| 2 |  State **three** ways in which computers have been used to fight the spread of corona virus in Kenya. * **Computers have been used to sensitize people on safety measures that help in preventing spread of virus**
* **For printing posters**
* **For conducting medical research in KEMRI**
* **For carrying out statistics for people infected with corona virus in Kenya in Kenya and comparing it with other countries (first 3@1mks**
 |  3 |
| 3 |  **A Form four student wants to send a large document to a printer.** 1. State the name for the area of memory that the document is sent to immediately from RAM

***Input buffer***As the printer runs out of paper during printing, the operating system sends a signal back to the computer to stop temporarily. Name this function of the operating system ***Interrupt handling*** | 11 |
| 4 | . i) Give two advantages of the higher number of pixels per square centimeter * **Higher screen resolution**
* **-Displays of sharp & clear images**
* **-The screen is able to display a higher number of different images**

 **(first** 2 correct @ 1mk, ½ mk each) | 1 |
|  | ii) Differentiate between Data interface cable and power cable **Data interface cable -These are special cables that connect all the peripheral devices to the motherboard and the CPU. They transmit data signals and information to and from the devices**Power cable **- Cable that supplies power to devices (correct @ 1mk)** | 2 |
|  | iii) Explain two differences between serial and parallel communication ports of a computer **-Serial ports have 9 pins, while parallel ports have holes for 9 or 25 pins****-Parallel cables transmit several bits of data simultaneously, while serial cables transmit One bit at a time****-Serial cables are slower than parallel cable****-Serial cables allow for 2 ways communication (i.e. communication to and from the computer and the device connected to it) while parallel cables usually offer 1- way communication. (first 2 @ 2mks)** | 2 |
| 5 | . i) What is line spacing as used in word processing? **-The vertical distance between two text lines in a document (correct @ 1 mk)** | 1 |
|  | ii) Describe any two line spacing specification used in Microsoft Word. * **Single space – accommodates the largest font in a line**
* **1.5 line space- 1 ½ time that of single line spacing**
* **Double – twice that of single line spacing**
* **Exactly – a fixed line spacing that word does not adjust**
* **At least – the minimum line spacing that is needed to fit the largest font or graphic on the line.**
* **Multiple- a line spacing that is increased or decreased by a percentage that you specify (first 2 @ 2mks, each ½ mk)**
 | 2 |
|  | iii) Name the two documents used in mail merge **- main document****- Data source** | 2 |
|  | iv). With reference to the concept of graphics as used in Microsoft word. Explain the difference between object linking and embedding? **-In linking, the object imported can only be edited in the original application from which it was created.****-In embedding, the object imported becomes part of the current application and can be edited there.** **(correct difference @ 2mk)** | 2 |
| 6 | Who am i?i) Am is skilled in software/program development as per requirement and technical operations of computer hardware. I also develop and update both system and application software together with the associated documentations.**-A Software developer/Engineer (correct @ 1mk)** | 1 |
|  | ii) Am is skilled in designing computer hardware and also improves on existing ones. **-A Computer engineer (correct @ 1mk** | 1 |
| 7 | i). During the COVID 19 pandemic, the government advised the citizens to use electronic funds transfer and other popular mobile phone money transactions to make payments.i) State how the above method of conducting business would help to curb on the spread of the disease **-Instant – One receive s the money –During the lockdowns people were able to send financial support easily****-Used as a measure to quarantine or curb spread of COVID 19 which spreads easily through hands and infected items or surfaces****-Digital payments allow people to access goods and services while in quarantine or social distancing.****-digital payments were such an alternative to boosting or sustaining e-commerce in the country.****- Local Governments and well-wishers were able to fundraise and distributed vouchers****Businesses experience some level of growth with e-commerce and online payments .** |   2 |
|  | ii) What is the meaning of electronic funds transfer? **EFT (electronic fund transfer) - us used to move money from one account to another. Or from case of mobile phone transactions .The transactions are completed electronically, and the two accounts can be at the same financial institution or different financial institutions. Term “EFT” is an umbrella term that covers a broad range of electronic payments** | 1 |
| 8 |  Define the term **dual booting** as used in computing. **A dual boot is when you INSTALL two operating systems on one computer and being able to choose which one to boot (correct @1mk** | 1 |
| 9 |  Differentiate between **cropping** and **grouping**. ***Cropping is removing unwanted parts of a graphics******Grouping is combining more than one object to be manipulated as one (correct @ 2mks*** | 2 |
| 10 | 10. Other than pseudo code, state **two** tools that can be used to present an algorithm * **flow chart**
* **Decision Tables**
* **Decision Trees (any two @2mks)**
 | 1 |
| 11 |  Differentiate between a **deadlock** and **interrupt** as used in operating system. **Deadlock refers to a situation whereby a particular job holds a resource and refuses to release it yet it is requesting for a resource held by another job****Interrupt is a break from the normal sequecial processing of instructions in a program** **(Correct @2mks**  | 2 |
| 12 | (a) Securem is a company that deals with providing security services to its clients. Name any **two** ways the company can protect its computer network from hackers. * **Log files**
* **Data encryption**
* **Use of password**
* **Firewalls (first 2 @2mks**
 | 2 |
|  |  (b) State **Four** characteristics of a suitable password. * **Easy to remember**
* **Hard to guess**
* **Should be a combination of letters and numbers**
* **Should be a minimum of 8 characters (first 4@½ mk**
 | 2 |
| 13 |  During system development the system analyst should consider the correct requirement specifications for the new system. State any **four outcomes** that may result from using incorrect requirement specifications. * **More costs than was projected**
* **The system will be delivered later than schedule**
* **The system will not meet user’s expectations**
* **The cost of maintaining and enhancing the system may be excessively high**
* **The system may be unreliable and prone to errors and downtime (first 4 @ 4 mk )**
 | 2 |
| 14 | (a) Define the term Computer Aided Design. **A system of programs and workstations used in designing engineering, architectural and scientific models ranging from simple tools to building. (correct @ 1mk)** | 1 |
| 15 | Explain two arithmetic errors that may occur during computerized data processing. * **Truncation error**
* **Rounding off error**
* **Overflow error (state @½ mk , explain @½ mk, total 1mk each)**
 | 2 |
| 16 | (a) Give **two** examples of syntax errors in programming. * **Punctuation mistakes**
* **Improper naming of variables**
* **Wrong spellings of user defined and reserved words. (first 2@2mks)**
 | 2 |
|  | b) With aid of a diagram, explain the “Repeat Until” construct as used in structured programming  ***- the program first executes then tests the condition and continues looping until the condition turn to true**** ***The program tests and then executes until the condition becomes true***

***(diagram @1mk, correct explanation @ 1mk*** | 3 |
|  | c) Classify the following programming languages according to their category:

|  |  |
| --- | --- |
| **Programming language** | **Category** |
| HTML | **Web scripting** (½mk ) |
| JAVA | **OOP** (½mk ) |
| JAVASCRIPT | **Web scripting** (½mk ) |
| PASCAL | **3GL**  (½mk ) |
| VISUAL BASIC | **4GL**  (½mk ) |
| LISP | **5GL** (½mk ) |

 | 3 |
|  | 1. i)What will be the output from the program

**X - 4** **N - 3** | 2 |
|  | 1. Draw a flowchart that was used to come up with the following pseudocode

Print N, XN = 0X = 0Is N < 3X = X + 1Is X < 2N = N + 1NoYesNoYes | 5 |
| 17 | a) State the **stage** in system development life cycle where each of the following activities are carried out:i. Identifying shortcomings of a system. **Problem definition** ii. Preparing the system migration plan **Implementation stage (1mk)**iii. Identifying the technologies that may be used in the proposed system. ***system analysis(correct @1mk)*** | 3 |
|  | (b) State and explain ***THREE*** components of an expert system. * **Knowledge base – stores knowledge inform of rules and facts concerning a certain subject of**
	+ - * + **Interest**
* **Inference engine – Software which controls how knowledge is searched and accessed from the knowledge base**
* **User interface – A feature that enables the user to interact with the system**
 | 3 |
|  | (c) E-mail technology has become a very important part of today’s communication. **Explain** any **three** problems associated with using e-mail technology for communication. * **Threat to privacy**
* **Messages can be sent to many people without their consent**
* **Email attachments can be sources of viruses**
* **Not available to all/technology illiteracy**
* **Emails can be unsolicited/spam mail**
* **Encourage illicit communication such as immoral behavior (first 3 @2mks each**
 | 3 |
|  |  (d) Sarafina wants to download her favourite movie from YouTube. State any **three** factors that may determine how long it will take her to complete the download. * **Other activities that may be running in the computer**
* **Bandwidth of the media used**
* **Size of the video**
* **Other restrictions enforced in the computer (first 3 @ 3mks)**
 | 3 |
|  | * Eye pattern
* Finger prints

 Voice |  3 |
| 18 | . The following Digital Club Member details were to be entered in a database: Name, Date of registration, Registration fee and Class.1. Prepare a suitable structure showing field names and their field types

|  |  |
| --- | --- |
| Field | Data type |
| Name | Text **(✓1mk)** |
| Date of registration | Date**(✓1mk)** |
| Registration fee | Currency or Number**(✓1mk)** |
| Class | Text**(✓1mk)** |

 | 4 |
|  |  |  |
|  | 1. Name one other field that the Club Patron may need to add to uniquely identify the record

 **Member Number**  | 1 |
|  | (c) Write the statement that can be used to select members of the class form 3 (2mks)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Name | Date of registration | Registration fee | Class |
|  |  |  |  |  |
| Criteria/ Expression |  |  |  | **Form 3**  |

 | 2 |
|  | d(i) Write a formula that will compute the number of items whose unit price whose price more than 10,000**=COUNTIF(B2:B6,”>10,000”) OR @COUNTIF(B2:B6,”>10,000”) OR +COUNTIF(B2:B6,”>10,000”)*** **(B2:B6) Argument range @1 mark**
* **(>10,000) Criteria @ 1 mark**
* **All Formula correct @ 1 mark**
 | 3 |
|  | (ii) If the formula =$B2\*C$2 was placed in D2, state the output if copied to D3 (2mks)**Formula is =$B3\*C$2 @ 1 mark** **=4,500\*2****= 9,000 @ 1 mark**  | 2 |
|  | (iii) Write the cell referencing used in c(ii) above **Mixed cell referencing** | 1 |
|  | (iv) Write the data type that is stored in cell C5 and A6 respectively **C5-Value****A6- label** | 2 |
| 19 |  a) Define the term attenuation as used in networking and data communication **It refers to the weakening of signal strength as it progressively moves from one point to another on the transmission media** | 1 |
|  | (b) The following are figures of networking cables. Identify each.**)****Figure 1 Figure 3****Figure 2 Figure 4**

|  |
| --- |
| **Figure 3: Coaxial** **Figure 4: Fibre optic** |

**Figure 1: Unshielded Twisted Pair (UTP)** **Figure 2: Shielded Twisted Pair (STP)** | 2 |
|  | c) (i) Give TWO examples of network software * **Network operating system**
* **Network protocols**
 | 2 |
|  | d) Explain the following terms as used in networking (i) Remote Communication**It involves transmission of data signals between two communication devices located at different geographical location, through which people can be able to share ideas over network**(ii) Distributed processing**This involves the subdivision of a process into several sub process then each sub process can be processed at a different site co-currently hence speeding up the entire process** | 4 |
|  | e) State FOUR functions of a server in a network * **It allows sharing a network printer**
* **It allows communication between the various workstations in a network**
* **It provides control access to available storage devices in network**
* **It allows sharing of communication. Files in the network**
* **It provides the transfer of files from one workstation to another workstation in the network.**
 | 4 |
| 20 | . (a (i)Define the term accreditation as used in education. The process of recognizing an institution as being able to offer degrees and diplomas. | 2 |
|  | (ii)Explain **two** factors you would consider before enrolling for an ICT course in a college. * **Cost.**
* **Job opportunities.**
* **Where the examinations offered are recognized.**
* **The organization offering the course.**
 |  2 |
|  | (b)**– be careful about body language, sitting arrangement, closeness etc** **- avoid personal biases in your questions and perceptions****-interviewee must be informed in good time and topic communicated earlier** | 3 |
|  |  c) Convert the following number systems 1. 37.62510 to binary

**Using long division get the binary of 3710 =1001012****get the binary of the decimal by multiplying repeatedly by two i.e 0.62510=0.1012****Add the binary of the whole number and the decimal****1001012+0.1012=100101.1012** | 4 |
|  | d) Using twos complement, perform the following arithmetic operation leaving your answer in decimal notation ***3910 – 1910*** ***using long division get the binary of:******3910 = 1001112*** ***1910= 100112******write the binary of 1910 in 8-bits 1910= 000100112******ones complement of the binary of 1910=11101100******twos complement ones complement =11101101******add the binary of 3910 to the twos complement of 1910******11101101******+0100111******(1)00010100 ignore the overflow******(1x24)+(1x22)=2010*** | 4 |
|  |  |  |
|  |  |  |