**CASPA EXAMINATIONS (2021)**

**COMPUTER STUDIES 451/1**

**(THEORY)**

***Kenya Certificate of Secondary Education (KCSE)***

**FORM TWO PAPER I MARKING SCHEME**

**July/August 2021**

**TIME 2 Hrs.**

1. State three differences between impact printers and non-Impact printer

|  |  |
| --- | --- |
| **Impact printer** | **Non-Impact printer** |
| * **Noisy**
 | * **Silent**
 |
| * **Slow**
 | * **Fast**
 |
| * **Low quality**
 | * **High quality**
 |
| * **Production of multiple copies possible**
 | * **Production of multiple copies impossible**
 |

**(Award 1 mark each max 3)**

1. Peter used a compact disk recordable to save his work. ½ of the disk was used to store video files while ¼ of the remainder was to save audio file. Note that CD-recordable is 700MB. Calculate the remaining space in bytes.

 **Video =0.5 x 700= 350 …………………… ½ mark**

 **Audio = 0.125 x 700=87.5 ………………… ½ mark**

 **Total = 437.7 …………………… 1mark**

 **Remaining spaces (700-437.5) = 262.5MB ………… 1mark**

1. Describe four ways in which ICT can be used to improve health care provision.
* **Telemedicine platform for sending reminders to the patients.**
* **Passing information from one place to another using WhatsApp’s, internet, email etc.**
* **For control life support machines like ICU using computer-based systems**
* **Performing research through the internet to check on the best practices.**
* **Use of electronic displays to perform advertisement hence create aware to the patients.**
* **Computer based systems support MRI, CITI scan and Ultrasounds.**
* **Laser surgery**

**(Award 1 mark each max 3)**

1. Mention three factors to consider when choosing an ISP for internet connectivity.
* **Cost**
* **Speed**
* **Reliability of the ISP**
* **Type of connection**
* **Availability**
* **Agility and flexibility**

**(Award 1 mark each max 3)**

1. Describe the term portability as used in the following context.
2. Hardware
* **In hardware portability is the ease of carrying a hardware component or computer from one place to another with ease**
1. Software
* **In software portability is the ease of copying or installing a program from one computer to another**

 **(Award 1 mark each max 2)**

1. John is a first-year student at JKUAT. He is expected to login his student portal to access online assignments. Mention three ways in which he would prevent virus from infecting his computer.
* **Install antivirus and update regularly.**
* **Scan removable storage devices before use.**
* **Scan email attachments for virus before opening them.**
* **Browse smart.**

 **(Award 1 mark each max 3)**

1. Using relevant examples distinguish between a formula and function.
* **Formula is a mathematical expression that creates a relationship between cells to return a new value like = B1+b2+c3**
* **Functions are inbuilt formula that the user can quickly use instead of having to create a new each time a calculation has to be carried out like =sum(c2:c7)**

**Note each correct example ½.**

 **(Award 1 mark each max 2)**

1. Musato high school wanted to setup a network connectivity to be used in school. Mention three internet connectivity requirement that the school must have to get the connection.
* **Internet Service Provider**
* **Transmission media**
* **Modem**
* **Internet software**
* **Communication node (Computer)**

**(Award 1 mark each max 3)**

1. What is a master page in Desktop publishing **(2marks)?**
* **Master page is a special page in DTP used to design the general layout that needs to be applied in all pages of the publications.**

**(Award 2 marks max 2)**

1. State the function of the following keys.
2. Return key.
* **Used to the computer instruction to perform a particular task.**
* **Used to move cursor the beginning of the next line.**
1. Delete
* **Used to erase characters from left to right.**

 **(Award 1 mark each max 2)**

1. Describe the following features of Database management software.
2. Macro (1mark)
* **Is a feature provided by DBMS to enable users automate frequently performed tasks.**
1. Table (1mark)
* **Is a database structure that is used to hold related records in a tabular form (row and columns)**

**(Award 1 mark each max 2)**

1. State three factors to consider when choosing a monitor.
* **Cost**
* **Power consumption**
* **Screen resolution**
* **Screen size**
* **Range of capabilities (additional features)**
* **Monitor type**

**(Award 1 mark each max 3)**

1. Milenga Special School received grants from the National government to purchase computers to be used in the departments and the Head teachers’ office, as a computer student the head teacher approached you to guide him on the hardware and software considerations to execute the project. Mention four hardware related factors that you need to consider for the project to be implemented successful.
* **Processor architecture and speed**
* **Memory capacity**
* **Portability**
* **Multimedia capabilities**
* **Cost**
* **Compatibility**
* **Upgradeability**

 **(Award 1 mark each max 4)**

1. Describe three functions of an operating system.
* **Error handling the operating system perform error check on both the hardware and software and suggest the solutions to the problem.**
* **Memory management the operating system divides memory into blocks and decide on what to be placed in memory at any given time.**
* **Interrupt handling the operating system study the cause of the interrupt then transfer control to the most appropriate program.**
* **Job scheduling the operating system give each task a fraction of the processor time then it will supervise how these tasks are processed one by one.**
* **Security operating system have several mechanisms of protecting data and programs such as password, backup etc.**

 **(Award 1 mark each max 3)**

1. Describe the effects of the following actions in a computer lab.
2. Eating in a computer laboratory
* **Avoiding carrying foodstuff in the computer lab since solid food particles may fall on the moving parts of the computer and damage it while liquid may cause rusting to the metallic parts of the computer.**
1. Smoking
* **Smoke and dust contain elements that can damage the computer.**

**(Award 1 mark each max 2)**

1. (i)Describe three components of a spreadsheet.
* **Worksheets refer to work area where data is entered it is made up of row and column.**
* **Database is a collection of related data elements organized to provide consistent and controlled accessed.**
* **Graph is a pictorial representation of the base data on a worksheet.**

**(Award 1 mark each max 3)**

 (ii)Describe three components of a function.

* **Equal signs mark the beginning of a function.**
* **Function names describe the activity to be performed.**
* **Argument the values to be acted upon**

 **(Award 1 mark each max 3)**

 (ii)A School keeps a spreadsheet of examination results in four subjects. Part of the spreadsheet is shown below.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** | **I** |
| 1 | **Name** | **Class** | **Math** | **Science** | **IT** | **English**  | **Average** | **Position** | **Remark** |
| 2 | Peruza | 11C | 87 | 72 | 64 | 61 | **71** | 1 |  |
| 3 | Kegg | 11A | 82 | 69 | 57 | 52 | **65** | 2 |  |
| 4 | Kolacz | 11A | 73 | 51 | 73 | 51 | **62** | 3 |  |
| 5 | Khan | 11C | 44 | 21 | 50 | 85 | **50** | 4 |  |
| 6 | Dyos | 11B | 41 | 54 | 70 | 31 | **49** | 5 |  |
| 7 | Lenski | 11B | 17 | 41 | 40 | 34 | **33** | 6 |  |
| 8 | Allen | 11A | 33 | 24 | 19 | 44 | **30** | 7 |  |
| 9 | **Mean score** | - | 53.86 | 47.43 | 53.29 | 51.14 | 51.43 |  |  |
| 10 | **Highest** | 87 | **Lowest** | 17 |  |  | ###### |  |  |

**Table 1**

1. What formula has been used to?
2. Calculate the mean score for Math.
* **=average(c2:c8) or =(c2+c3+c4+c5+c6+c7+c8)/7**
1. Assign Lenski position 6 out of 7.
* **=rank(g7, $g$2:$g$8, 0)**
1. Get student with the highest marks in Math and Science.
* **=max(c2:d8)**
1. Show how cell G10 can be represented in R1C1 style **(1mark)**
* **=R10C10**

**(Award 1 mark each max 4)**

1. Write a function that will display Excellent, Good, Average and Fail in the remark column based on the average score.

|  |  |
| --- | --- |
| **Average** | **Remark** |
| **66 -100** | **Excellent** |
| **46-65** | **Good** |
| **36-45** | **Average** |
| **0-35** | **Fail** |

* **=IF(G2>=66, “Excellent”, IF(G2>=46,”Good”, IF(G2>=36,”Average”,”Fail”)))**
* **Award 1 mark for correct function name**
* **Award 2 marks for correct bracket to bracket**
1. State the validation check that should be carried out on data entered in cell C2 to F8 to ensure values over 100 are not input.
* **Go to data validation feature.**
* **Then set the minimum value to zero and maximum to hundred.**

**(Award 1 mark each max 2)**

1. List two items found in Ms-word formatting toolbar **(2marks**
* **Bolding**
* **Italicing**
* **Underline**
* **Superscript**
* **Subscript**
* **Font color**
* **Decrease and increase font size.**

**(Award 1 mark each max 2)**

1. With an aid of a diagram explain the difference between merging cells and splitting cells **(3marks)**

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  |  |  |

* **Merging cells refer to combining more than one in a table.**

|  |
| --- |
|  |
|  |  |  |

* **Splitting refers to subdividing a cell into more cells.**

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |
|  |  |  |

 **Note award ½ for correct diagram max 1.**

**(Award 1 mark each max 2)**

1. Mark Jacob typed **Kanga High School** in a Ms-Word workspace. State how the line of text will appear if he applies the following change case option.
2. Toggle case
* **kANGA hIGH sCHOOL**
1. Sentence case
* **Kanga high school**
1. Upper case
* **KANGA HIGH SCHOOL**

**(Award 1 mark each max 3)**

1. James was preparing a document which contains lines of text and graphic. When he typed the last sentence, the whole sentence was pushed to the next page making the document to have two pages. Mention fours ways that can be applied to this document to make it fits with a page.
* **Reduce the font size.**
* **Reduce the size of the graphics.**
* **Reduce line and character spacing.**
* **Adjust the page margin accordingly.**

 **(Award 1 mark each max 3)**

1. Describe four proofreading tools supported by Ms-words.
* **Spelling and grammar checkers is a tool that helps the user to correct spelling error and incorrect grammar structure.**
* **Thesaurus finds synonyms and antonyms.**
* **Autocomplete completes a word when the user typed the first few characters of the word.**
* **Autocorrect detects wrongly spelled or capitalized words and replace them with correct word.**
* **Undo it reverses the last command that was issued to revert back to the previous state.**
* **Redo it does the last undone action.**

**(Award 1 mark each max 4)**

1. State the difference between Fill and stroke as applied in DTP.
* **Fill refer to applying patter like shading.**
* **Stroke is a line style.**

**Consider diagrams also at 1 mark each max 2.**

**(Award 1 mark each max 2)**

1. Give three purposes of desktop publishing software.
* **Graphic design**
* **Page layout design**
* **Printing**

**(Award 1 mark each max 3)**

1. Describe two types of desktop publishing software.
* **Graphic based DTP are specifically developed to edit and format graphical objects like pictures.**
* **Layout based DTP are meant to create different page layout designs for text and pictures.**

**(Award 1 mark each max 2)**

1. Describe the following terms as used in DTP.
2. Pasteboard
* **A large blank area where text and graphical objects are organized before arranging the neatly on the printable area.**
1. Printable area
* **It is the area that looks like a page surrounded by margins on the pasteboard.**
1. Ruler
* **help in positioning text and graphics accurately within the publication.**

 **(Award 1 mark each max 3)**

1. Describe the following features with respect to DTP.
2. Wrapping text
* **A feature that allows line of texts to be place around an image.**
1. Drop cap.
* **Drop cap refers to a feature that makes the first character in a line to be bigger and drops down to occupy the spaces in the next line.**

**(Award 1 mark each max 2)**

1. State the function of the following toolbox items as used in Adobe Page Maker
2. Text tool
* **Type, select and edit text.**
1. Cropping tool
* **Trim imported graphic.**
1. Zoom tool.
* **Magnify or reduce an area of the page.**

**(Award 1 mark each max 3)**

1. Describe the following database models.
2. Relational l Model
* **In this model related data items are stored in a structure called relation or table and relationships can be created between tables such that a record from one table relates to another table**
1. Networked model
* **In network model data elements are linked using different pathways to express a relationship between them creating a network like structure**
1. Object oriented.
* **Look at records as objects that are independent and relates with each other object in the database.**

**(Award 1 mark each max 3)**

1. A database was set up to record the test results for a class of students. Part of the database is as shown below.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Name | ID | Math | English | Science | History | Geography |
| Paul Smith | 0017 | 70 | 55 | 65 | 62 | 59 |
| Ravi Gupta | 0009 | 29 | 34 | 38 | 41 | 44 |
| Chin Hwee | 0010 | 43 | 47 | 50 | 45 | 52 |
| John Jones | 0013 | 37 | 67 | 21 | 28 | 35 |
| Diana Abur | 0001 | 88 | 92 | 95 | 89 | 78 |
| Rose Achieng | 0016 | 21 | 13 | 11 | 27 | 15 |

1. Give the number of fields that are in the table above **(2marks)**
* **7**

**(Award 2 marks max 2)**

1. How many records are in the above table?
* **6**

**(Award 2marks max 2)**

1. Choose the most appropriate key field for the table and give a reason for your choice **(2marks)**
* **Key field ID it is unique and therefore cannot be shared.**

**(Award 2 marks max 2)**

1. Choose the data type for Name, ID, and Math
* **Name-Text**
* **ID –Text**
* **Math –Number**

**(Award 1 mark each max 3)**

1. Suggest how the marks columns should be validated.
* **Type >=0 and =< 100**

**(Award 1 mark max 1)**

1. Write an expression that can be used to calculate the total at the query grid.
* **Total: [Math]+[English]+[Science]+[History]+[Geography]**

**Note the spelling and brackets must include to score full marks.**

**(Award 2-mark max 2)**

1. Describe two functions of a file extension.
* **Used for searching files within a storage location.**
* **Used to describe the content of a file.**

 **(Award 1 mark each max 2)**

1. Explain the following terms as used in computing.
2. Hanging
* **Refer to nonresponsive behavior of a computer especially after a command has been issued.**
1. Virus
* **A computer program created by malicious programs to disrupt the normal function of the computer.**
1. Troubleshooting
* **refer to the process of diagnosing and fixing hardware and software related problems.**

**(Award 1 mark each max 3)**

1. Identify four resources that are under operating system control.
* **Processor**
* **Memory**
* **Input output devices**
* **Secondary storages devices**

**(Award 1 mark each max 4)**

1. Why must operating system be installed in the computer before installing any other software?
* **It is the main program responsible for managing and controlling computer resources.**
* **(Award 2marks max 2)**
1. Give four reasons that may cause computer malfunction.
* **Hardware malfunction**
* **Malware**
* **Improper installation**
* **Missing system files**
* **Incomparability between hardware and software**
* **(Award 1 mark each max 4)**