451/1
COMPUTER STUDIES
Paper 1
MAY 2015
Time: 2 ½ Hours

TIGANIA SOUTH PRE-MOCKS 2015
Kenya Certificate of Secondary Education (K.C.S.E)

INSTRUCTIONS TO CANDIDATES

- Write your name, School and index number in the spaces provided above.
- This paper consists of Two sections A & B
- Answer ALL the questions in Section A
- Question 16 is compulsory
- Answer any THREE questions in section B
- All answers to ALL questions must be written in the spaces provided in the question paper

FOR EXAMINERS USE ONLY

<table>
<thead>
<tr>
<th>SECTION</th>
<th>QUESTION</th>
<th>MAXIMUM MARKS</th>
<th>CANDIDATES SCORE</th>
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<tr>
<td>A</td>
<td>1-15</td>
<td>40</td>
<td></td>
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<td>B</td>
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<td>15</td>
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<td></td>
<td>20</td>
<td>15</td>
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<tr>
<td>TOTAL SCORE</td>
<td></td>
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<td>100</td>
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</table>
SECTION A (40 MARKS)

Answer all the questions in this section in the spaces provided

1. State any two peripheral devices that are powered by the system unit. (1 mk)

2. The following are symbols of some keys found on the keyboard. Name the keys represented by the symbols. (2 mks)

```
[←]  [↑]  [←]  [→]
```

3. Explain any three functions of system software in a computer (3 mks)

4. As a computer student you have been asked to assist in buying an input device. State any four factors to consider when buying input devices. (4 mks)

5. i. The arithmetic logic unit, the control unit and the main memory use electrical pathways or links called buses. State and explain the three types of buses. (3 mks)

   ii. What is the role of special purpose memories in the microprocessor? (1 mk)

   Outline the three differences between primary memory and secondary memory. (3 mks)

6. Citing relevant examples state two advantages of integrated software as opposed to single purpose. (2 mks)

7. a. Define the term mail merging (1 mk)

   b. Name two files that are created in mail merging process (1 mks)

8. (a) Distinguish between a workbook and a worksheet as used in spreadsheets (2 mks)
(b) What is the meaning of “what if analysis” with respect to spreadsheet? (1mk)

10. Define the following terms in relation to internet (2 mks)
   i). Downloading
   ii). Hyperlink

11. Benjos was instructed by his teacher while typing a Microsoft word document to replace all the occurrences of the word MS with Microsoft. Highlight the steps to do this (3mks)

12. What is the difference between logical and physical file? (2mks)

13. Explain any three types of computer processing files. (6mks)

14. Give a reason why HTML is not considered as a true programming language. (1mk)

15. (a) Define the following computer crimes (1mk)
   (i) Piracy
   (ii) Industrial espionage
SECTION B (60 MARKS)

Answer questions 16 (COMPULSORY) and any other three questions in this section

16. (a) Draw a flowchart for a program that is to prompt for N numbers, accumulate the sum and then find the average. The output is the accumulated totals and the average.  

(b) Write a pseudo code for the above program. 

(c) Explain three types of control structures use in programming. 

17.  

(a)  

i. Subtract 110\textsubscript{2} from 11010\textsubscript{2} 

ii. Find the sum of binary number 101.101\textsubscript{2} and 110.100\textsubscript{2} 

(b)  

i. Convert binary number 11010110.1001\textsubscript{2} into octal number. 

ii. Convert binary number 11010110.1001\textsubscript{2} into hexadecimal number. 

(c) Convert the following numbers to their decimal equivalent  

i. 11.011\textsubscript{2}
ii. Convert $3BD_{16}$ to Octal.

ii. Using one’s complement, calculate $5_{10} - 9_{10}$. Use six bit in your calculation.

(e) State the following types of transcription errors:
   i. 3455 instead of 3456
   ii. Simth instead of Smith

18. (a) State and explain the following types of relationship as used in database design
(b) i. Explain the difference between primary key and an index key as used in database application (2 marks) 
………………………………………………………………………………………………………………
………………………………………………………………………………………………………………
ii. Outline the functions of a primary key (2 marks) 
………………………………………………………………………………………………………………
(c) Describe the following types of database model 
   i. Network model (2 marks) 
   ii. Relational model (2 marks) 
19. (a) i. What is an operating system? (1 mark) 
………………………………………………………………………………………………………………
   ii. Maintaining security is one of the functions the operating system. Explain how the operating system maintains security (2mks) 
………………………………………………………………………………………………………………
   iii. Explain how an operating system controls I/O devices. (2mks) 
………………………………………………………………………………………………………………
(b) What does the following control measures against computer crime involve? (5 mks)
i. Audit trail  
ii. Data encryption  
iii. Log files  
iv. Passwords  
v. Firewall

(c) Briefly explain what happen during power on self test (POST)  

(d) Explain the functions of complementary metal-oxide semiconductor (CMOS)  

20. a) State **two** advantages and two disadvantages of the ring network topology  
   Advantage  
   Disadvantages  

   b) State **two** roles and responsibilities of each of the following ICT professionals  
   i) Webmaster  
   ii) Network Administrator  
   iii) Computer scientists  
   iv) System Administrator  
   v) Software Engineer  

   c) Explain the term accreditation as used in education
INSTRUCTIONS TO CANDIDATES.

- Type your name and index number at the top right hand corner of each printout.
- Sign and write the date of the examination below the name and index number on each printout.
- Write your name and index number on the compact disks.
- Write the name and version of the software used for each question attempted in the answersheet.
- Passwords should not be used while saving in the compact disks.
- Answer all the questions.
- All questions carry equal marks.
- All answers must be saved in your compact disks.
- Make a printout of the answers on the answers sheets provided.
- Hand in all the printouts and the compact disks.
QUESTION 1

(a) Using a DTP program, design the publication using the sample given in the next page as your reference and save it as Polite Notice. (29mks)

In your design take into account the following

The size of the publication should be A4, portrait orientation. (1mk)

(b) The page margins should be set all-round at 0.6” (inches) or 15.24mm – (Left, Right, Top and Bottom) (2mks)

(c) Format the header to 45pts font size; add a double outline border of 3pts. In weight (2mks)

(d) The text inside the star object should be reverse text, Bold and 20pts. (3mks)

(e) The numbered and bulleted lists should be formatted to 18pts with paragraph spacing of 1.5 pts. (1mk)

(f) Format the arrow lines pointing to the circle outlining the numbered and bulleted lists, and the circle to 2pts in weight with the text inside the circle formatted to 18pts. (2mks)

(g) The vertical text “Remember to abide ……” should be formatted to font size 20pts and underlined with thick dots. (1mk)

(h) (i) Format the line above the “All the Best …. “ text to 4.5pts in weight. (1mk)
(ii) Format the text “All the Best …. “ to font size 22pts centered and interlaced. (2mks)

(i) Print the publication. (1mk)
POLITE NOTICE!

CLASSROOM RULES

1. NO FOOD or drink in any of the ICT classrooms.
2. NO RUNNING in the classrooms
3. All bags should be LEFT under the workstation
4. All students must STAY at their own workstation and not interfere with other students’ work

To all Students all Times
- Students must no TOUCH or PLAY with any wires or sockets.
- Students must not SWING on their chairs or PUSH them around the room
- Always ARRANGE the chairs and desks in the ICT classroom
- Students should only access their OWN user areas

Remember to abide by all these rules to avoid any problem.

All The Best in Your Academic Endeavour's
QUESTION 2

SaidiaKazi is non-governmental organizations giving manual jobs to unskilled labourers in rural areas to enable them have a way of earning a living. They issue them with tools in order for them to do the job assigned to them. They have asked you to computerize their stores to enhance their issuance of various tools.

The following files are held by the manual system.

<table>
<thead>
<tr>
<th>Stores</th>
<th>Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool ID</td>
<td>Tool ID</td>
</tr>
<tr>
<td>Tool description</td>
<td>Quantity</td>
</tr>
<tr>
<td>Condition</td>
<td>Number in Group</td>
</tr>
<tr>
<td></td>
<td>Issue date</td>
</tr>
<tr>
<td></td>
<td>Return date</td>
</tr>
</tbody>
</table>

**Required**

(a) Create a database named **SaidiaKazi**, and add two tables named **Stores** and **Issues** using the details given above. (11 mks)

(b) Add an appropriate primary key to the stores table and a foreign key into the issues tables during the design. (2 mks)

(c) The organization needs to keep track of the store tools issued to each of the group. Create a relationship between the two tables and reinforce referential integrity to enable them to do this. (5 mks)

(d) Create columnar forms for each of the tables above and save them as **Storetoolentryform** and **Issuingtoolsform** respectfully or create a form with a sub-form with the parent and the child forms having the suggested names. (10 mks)
(e) The following list of tools and tools issuing list was available as at 11\textsuperscript{th} March 2015.

**Stores table**

<table>
<thead>
<tr>
<th>Tool ID</th>
<th>Description</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>KK01</td>
<td>Shovels</td>
<td>New</td>
</tr>
<tr>
<td>KK23</td>
<td>Fork Jembe</td>
<td>Good</td>
</tr>
<tr>
<td>KK40</td>
<td>Mattock</td>
<td>Fair</td>
</tr>
<tr>
<td>KK60</td>
<td>Axes</td>
<td>Fair</td>
</tr>
</tbody>
</table>

**Issue table**

<table>
<thead>
<tr>
<th>Tool ID</th>
<th>Group</th>
<th>Number of members</th>
<th>Quantity</th>
<th>Issue date</th>
<th>Return date</th>
</tr>
</thead>
<tbody>
<tr>
<td>KK01</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>11/01/2015</td>
<td>28/01/2015</td>
</tr>
<tr>
<td>KK40</td>
<td>4</td>
<td>7</td>
<td>7</td>
<td>12/02/2015</td>
<td></td>
</tr>
<tr>
<td>KK60</td>
<td>8</td>
<td>3</td>
<td>3</td>
<td>14/01/2015</td>
<td></td>
</tr>
<tr>
<td>KK01</td>
<td>7</td>
<td>10</td>
<td>10</td>
<td>16/01/2015</td>
<td>17/02/2015</td>
</tr>
</tbody>
</table>

Use the appropriate form you have created to enter the records shown above. (8 mks)

(f) Add a validation rule and text that validates data entry such that, the number of members in a given group should be more than one and less than ten (3 mks)

(g) (i) The management wishes to know the tools that have not been issued to any of the groups. Create a query that finds these tools, name it toolsnotissued. (3 mks)

(ii) You have been asked to produce a report of the tools that have not been returned to stores. Create a report named toolsout of these tools having the following fields Toolid, Description, Group, Quantity and IssueDate. (4 mks)
The two tables

Query

Report