

## 4.23 COMPUTER STUDIES (451)

### 4.23.1 Computer Studies Paper 1 (451/1)

NO	ANSWER	MARKS
1.	<b>Reasons for the preference for laptops.</b> <ul style="list-style-type: none"><li>- They are small and fit in a small storage space.</li><li>- They are light weight hence can be carried to areas where their services are required.</li><li>- The monitor, system unit, keyboard units are attached together hence making its use to be convenient.</li><li>- Rechargeable / backup battery.</li></ul> <p style="text-align: right;">Any 2 x 1</p>	2
2.	<b>Reasons for the use of command – line interface OS</b> <ul style="list-style-type: none"><li>- They do not take up a lot of memory hence boot faster than the GUI OS.</li><li>- They have direct access or most hardware devices.</li><li>- They are cheaper to acquire as some can be downloaded free of charge.</li><li>- They can run on lower –bit hardware systems such as 32-bit computers.</li></ul> <p style="text-align: right;">Any 3 x 1</p>	3
3.	<b>Measures to be put in place in the laboratory to safeguard user health.</b> <ul style="list-style-type: none"><li>- All power cables must be insulated and hidden from users.</li><li>- The furniture used must be of standard computer furniture.</li><li>- The room should be lit with adequate lighting.</li><li>- The room must be ventilated.</li><li>- Computer monitor should be fitted with antiglare to filter excess light rays emanating from the monitor.</li><li>- Avoid slippery floors/cemented floors.</li><li>- Controlling dust.</li></ul> <p style="text-align: right;">Any 3 x 1</p>	3
4.	<b>Ways in which barcode readers can be used in a school.</b> <ul style="list-style-type: none"><li>- To take inventory of items in the school.</li><li>- To keep track of employee login log out.</li><li>- Used to transact business in the library.</li><li>- Used to keep track of movement of goods.</li></ul> <p style="text-align: right;">Any 3 x 1</p>	3
5.	<b>Advantages of flat panel monitors.</b> <ul style="list-style-type: none"><li>- They are compact and light weight;</li><li>- They consume less power;</li><li>- They do not suffer from geometrical distortions;</li><li>- They do not cause eye fatigue.</li><li>- They support many advanced technologies;</li><li>- They can be made in almost any size and shape;</li><li>- They support higher resolution.</li><li>- Low heat radiation.</li></ul> <p style="text-align: right;">Any 3 x 1</p>	3
6.	<b>Reasons why daisy wheel printer are in extinct.</b> <ul style="list-style-type: none"><li>- They supported one font size and font face;</li><li>- They were monochrome printers;</li><li>- They produced noise while printing;</li><li>- They were very slow;</li></ul>	

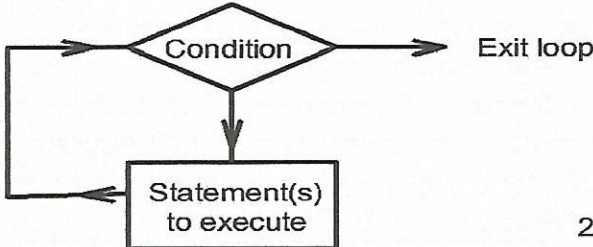


NO	ANSWER	MARKS
	<ul style="list-style-type: none"> <li>- Did not print graphics.</li> <li>- Had poor print quality.</li> </ul> <p style="text-align: right;">Any 3 x 1</p>	3
7.	<p><b>Ways in which an OS secures computer system:</b></p> <ul style="list-style-type: none"> <li>- Access controls: Authentication of users in order to access files;</li> <li>- Performing regular patches of updates;</li> <li>- Creating secure accounts with required privileges;</li> <li>- Scrutinizing all incoming and outgoing packets of data through a firewall;</li> <li>- Encryption of data, during the transmission stage;</li> <li>- Password / biometric analysis;</li> <li>- Log files to detect any breach.</li> </ul> <p style="text-align: right;">Any 3 x 1</p>	3
8.	<p><b>Advantages of hardcopy output.</b></p> <ul style="list-style-type: none"> <li>- They are acceptable as exhibit in cases of litigation.</li> <li>- Can be used without a computer.</li> <li>- They are difficult to change without leaving any trace.</li> <li>- They can be used without power.</li> <li>- They can be used without the experience of computer usage.</li> </ul> <p style="text-align: right;">Any 2 x 1</p>	2
9.	<p><b>(i) Thesaurus:</b> It is a feature in a word processor that suggest words with similar or opposite meaning to the selected word @1.</p> <p><b>(ii) Comments:</b> It is a feature in WP that allows a user to attach a remark about the selection @1.</p>	2
10.	<p><b>Multilevel list:</b> It is a format style that shows the listed items of different levels rather than one at one level. Each level has different indentation and numbering style @2.</p> <p><b>Example (Accept any)</b></p> <p>1. Chapter One</p> <p>    1.1 Introduction</p> <p>        1.1.1 Definition of terms @1.</p>	3
11.	<p><b>Distinction between real-time and distributed OS.</b></p> <ul style="list-style-type: none"> <li>- Real-time OS reads information from input devices and must respond within a short duration of time to ensure correct performance.</li> <li>- Distributed OS distributes computation among several physical processors which do not share memory or clock.</li> </ul>	3
12.	<p><b>Function of protect sheet:</b></p> <ul style="list-style-type: none"> <li>- It is a feature used to prevent unwanted changes to be made on the data contained in a sheet by limit the ability to make changes.</li> </ul>	2



NO	ANSWER	MARKS
13.	<b>Computer based careers created by introducing computerized data processing.</b> <ul style="list-style-type: none"> <li>– System analysts</li> <li>– Hardware technicians</li> <li>– Data entry clerks</li> <li>– Programmers</li> <li>– Networks technicians</li> <li>– Database administrators</li> <li>– Web designers</li> <li>– Network administrator</li> </ul> <p style="text-align: right;">(Any 4 @ ½ mark)</p>	2
14.	<b>= If (A1 &gt; 10, A1 * 77, A1 * 50)</b> Compares the value in cell A1 If it is greater than 10, if comparison is <b>True</b> , the results of operations A1 * 77 is displayed, if it is <b>False</b> the results of the operations A1 * 50 is displayed.	3
15.	(a) Identifying technologies that could be used in the system. <ul style="list-style-type: none"> <li>– System analysis/ information gathering/problem recognition (@ 1)</li> </ul> (b) Identifying the shortcoming of the old system <ul style="list-style-type: none"> <li>– Problem definition (@ 1)</li> </ul> (c) Prepares the software migration plan <ul style="list-style-type: none"> <li>– Implementation stage (@ 1)</li> </ul>	3

**SECTION B (60 Marks)**  
**MARKING SCHEME**

NO	ANSWER	MARKS
16. (a)	Looping is the control structure that allows a block of code/statements to be repeated until a certain condition is fulfilled. @ 2 marks   <p style="text-align: right;">2 marks</p> <p style="text-align: right;"><b>Accept any type of looping control structure</b></p>	4
(b)	(i) The pseudocode compares two values and output one of the two which is greater.	1

NO	ANSWER	MARKS
	<p>(ii)</p> <pre> graph TD     Start([Start]) --&gt; Input[/Value 1 Value 2 @ 1/]     Input --&gt; Cond1{Value 1 &gt; Value 2 ? @ 1}     Cond1 -- T --&gt; Max1[Maximum = Value 1 @ 1]     Cond1 -- F --&gt; Cond2{Value 1 &lt; Value 2 ? @ 1}     Cond2 -- T --&gt; Max2[Maximum = Value 2 @ 1]     Max1 --&gt; Display[/Display Maximum @ 1/]     Max2 --&gt; Display     Display --&gt; Stop([Stop])   </pre> <p>Chart Logic @ 1</p>	6
(c)	<p><b>Distinction between a source program and compiler</b></p> <ul style="list-style-type: none"> <li>Source program is the original computer based instructions written by a programmer in a programming language while</li> <li>A compiler is a program that processes statements/instructions and translates them into machine language.</li> </ul>	4
17. (a)	<p>(i) <b>Search-engine</b></p> <p>It is a web-based application used to locate for an item or information from world wide web.</p>	2
	<p>(ii) <b>Factors that affects duration of download</b></p> <ul style="list-style-type: none"> <li>The size of the video</li> <li>The band width of the media used</li> <li>Availability of network</li> <li>Other activities that may be running in the computer.</li> <li>Other restrictions enforced in the computer</li> <li>The restrictions by the ISP</li> <li>Speed of computer</li> </ul> <p>(Any 3 @ 1)</p>	3



NO	ANSWER	MARKS
(b)	<b>Causes of Wakulima system's failure</b> <ul style="list-style-type: none"> <li>– Lack of power supply to the system servers.</li> <li>– Network infrastructure breakdown/poor network coverage/lack of connection.</li> <li>– Program failure in the system/malware (virus).</li> <li>– Hardware failure in the system.</li> <li>– Human action which could be accidental or intentional.</li> <li>– Lack of access rights.</li> <li>– System overload</li> </ul> <p style="text-align: right;">(Any 4 @ 1 mark)</p>	4
(c)	(i) <b>Cropping</b> Used when handling a graphic and there is a need to remove some of the portions in the graphic.	2
	(ii) <b>Transparency</b> Used when there is a need to make the background of a graphic to be visible.	2
(d)	<b>Areas where infra-red radio waves are used.</b> <ul style="list-style-type: none"> <li>– TV remote control communication;</li> <li>– DVD remote control communication</li> <li>– Communication between peripheral devices and the computer</li> <li>– Data link over short distance using mobile phones</li> <li>– Radio remote control</li> <li>– Remote locking / opening doors/devices</li> </ul> <p style="text-align: right;">(Any 2 x 1)</p>	2
18. (a)	<b>Activities at the planning stages</b> <ul style="list-style-type: none"> <li>– Identify opportunity for the new project.</li> <li>– Analyse feasibility to establish the viability of the project.</li> <li>– Develop a work plan.</li> <li>– Identify appropriate staff to work in the project.</li> <li>– Control and direct the project.</li> </ul> <p style="text-align: right;">(Any 4 x 1)</p>	4
(b)	(i) <b>Technical Feasibility</b> Meant to determine whether the proposed solution is technically practical/establish whether the technology is available /expertise is available. (@ 2)	6
	(ii) <b>Economic Feasibility</b> Meant to establish whether the proposed system will be cost effective. (@ 2)	
	(iii) <b>Schedule Feasibility</b> Meant to establish whether the system can be implemented within an acceptable time frame. (@ 2)	



NO	ANSWER	MARKS
(c)	<p>(i) <b>Primary keys in the table</b>  Table 1 : Dept code @ ½  Table 2 : Student's Registration No. @ ½</p>	1
	<p>(ii) <b>Benefits of referential integrity in the table</b></p> <ul style="list-style-type: none"> <li>– No record can be added to the table 2 if its corresponding record in Table 1 does not exist.</li> <li>– No record in Table 1 can be deleted without first deleting associated records in Table 2.</li> <li>– Reduces data redundancies.</li> <li>– Prevent deletion of related tables.</li> </ul> <p>(Any 2 x 2)</p>	4
19. (a)	<p>(i) <b>Preserve check</b>  It is a measure placed used to ensure that data item is in its original status.  (@ 2 marks)</p>	2
	<p>(ii) <b>Data type check</b>  It is a measure that ensures that correct data type is entered for each field.  (@ 2 marks)</p>	2
	<p>(iii) <b>Check digit</b>  This is a number calculated by the computer to make sure that the other numbers in a sequence have been entered properly.  (@ 2 marks)</p>	2
(b)	<p>(i) <b>BCD</b>  Binary Coded Decimal  (@ 1)</p> <p>(ii) <b>EBCDIC</b>  Extended Binary Coded Decimal Interchange Code.  (@ 1)</p> <p>(iii) <b>ASCII</b>  American Standard Code for Information Interchange  (@ 1)</p>	3
(c)	$  \begin{array}{r}  129_{10} - 128_{10} \\  +129 = 00 \quad 1000 \quad 0001 \\  128 = 00 \quad 1000 \quad 0000 \\  -128 = 11 \quad 0111 \quad 1111 \\  \qquad \qquad \qquad + 1 \\  \hline  11 \quad 1000 \quad 0000 \quad (\text{Twos complement}) \\  \\  +129 + (-128) \\  = 00 \quad 1000 \quad 0001 \\  + \quad 11 \quad 1000 \quad 0000 \\  \hline  1 \quad 00 \quad 0000 \quad 0001 \\  = 00 \quad 0000 \quad 0001 \quad (\text{Overflow bit ignored})  \end{array}  $	6



NO	ANSWER	MARKS
20. (a)	<p>(i) <b>I. Router</b> It is the device meant to forward data packets between computer network in the school and the internet. (@ 2 marks)</p> <p><b>II. Firewall</b> It is a device that prevents unauthorized access to or from a private network (school's LAN) (@ 2 marks)</p> <p><b>III. File server</b> It is a computer attached to a network whose purpose is to provide location for shared disk access (shared storage of computer files). (@ 2 marks)</p>	6
	<p>(ii) <b>Software to be installed in a computer</b></p> <ul style="list-style-type: none"> <li>- Network operating system</li> <li>- Browser/Mozilla,firefox</li> <li>- Necessary system drivers to supports installed hardware</li> <li>- Protocols(SMTP,HTTP)</li> </ul> <p>(Any 2 @ 1 mark)</p>	2
(b)	<p><b>Use of computers in research for data management</b></p> <ul style="list-style-type: none"> <li>- Used for data manipulation;</li> <li>- Computers aid in data capturing;</li> <li>- Computers can be used to store researched and analysed data;</li> <li>- Information in computers can be a secondary source of data;</li> <li>- Computers can be used to generate reports;</li> <li>- Computers can be used to communicate researched work.</li> </ul> <p>(Any 4 x 1)</p>	4
(c)	<p><b>Advantages of online application services and shared processing resources.</b></p> <ul style="list-style-type: none"> <li>- Users will not be required to have powerful processing devices;</li> <li>- Users can access the services from anywhere in the world;</li> <li>- Users can access services at any time (24/7);</li> <li>- Users can offload their data to the cloud infrastructure;</li> <li>- Users can collaborate with remote users to process the data;</li> <li>- The approach will cut out high cost of hardware;</li> <li>- Sharing of resources;</li> <li>- Faster access to service;</li> <li>- Cost effective;</li> <li>- Orders are made without going to the shop.</li> </ul> <p>(Any 3 x 1)</p>	3