

## 4.23 COMPUTER STUDIES (451)

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

NO	ANSWER	MARKS
1.	<p><b>Computer software</b></p> <p><input type="checkbox"/> It is a set of programs written in a computer language to direct a computer on how to perform a particular task or behave in a certain way.</p>	2
2.	<p><b>Features of fifth generation computers</b></p> <p><input type="checkbox"/> Use of expert system</p> <p><input type="checkbox"/> Support the use of natural language</p> <p><input type="checkbox"/> Support distributed computing</p> <p><input type="checkbox"/> Support artificial intelligence and voice recognition.</p> <p><input type="checkbox"/> Support parallel processing</p> <p><input type="checkbox"/> Small in size/ portable</p> <p><input type="checkbox"/> Superior hardware and software</p> <p><input type="checkbox"/> consume less power</p> <p>( First 3 @ 1 mark)</p>	3
3.	<p><b>Difference between Home page and web page</b></p> <p><b>Home Page</b></p> <p><b>Web Page</b></p> <p>It's the first page that opens when a site is opened using the when the domain name.</p> <p>It is web document in a website/ Any page on a web.</p>	2
4.	<p><b>Characteristics of mainframe</b></p> <p><input type="checkbox"/> They have bigger memory capacity.</p> <p><input type="checkbox"/> Have high processing power.</p> <p><input type="checkbox"/> It supports multiprocessing.</p> <p><input type="checkbox"/> Supports large number of users at the same time/ Supports several peripheral devices.</p> <p><input type="checkbox"/> Runs so many applications at the same time.</p> <p>(First 3 @ 1 mark)</p>	3
5.	<p><b>Factors to consider when purchasing a printer</b></p> <p><input type="checkbox"/> Volume of work to be printed.</p> <p><input type="checkbox"/> Maintenance cost below e.g. consumables like toners should be affordable.</p> <p><input type="checkbox"/> Speed of printing.</p> <p><input type="checkbox"/> Type of work to be printed; type of paper, paper size/user needs /range of capability.</p> <p><input type="checkbox"/> Type of printout whether colour is required or not.</p> <p><input type="checkbox"/> Compatibility with the existing hardware</p> <p><input type="checkbox"/> Initial cost</p> <p><input type="checkbox"/> availability of in the market</p> <p><input type="checkbox"/> Portability / physical size</p> <p>(First 3 @ 1 mark)</p>	3



NO	ANSWER	MARKS
6.	<p><b>Description of computer cables</b></p> <p>a) <b>Parallel cable</b> It is a communication cable which has high speed of transmission and transmits several bits at the same time.</p> <p>b) <b>Serial cable</b> It is a communication cable which has low speed of transmission and bits follow one another in sequence or are transmitted one at a time.</p>	2  2
7.	<p><b>Precautions to be put in place in the lab to avoid dust</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Fit ventilating / air conditioning system to allow free circulation of air.</li> <li><input type="checkbox"/> Fit curtains on the windows / add a curtain net to reduce dust entry into the laboratory.</li> <li><input type="checkbox"/> Regularly use of a blower or vacuum cleaner/mop to blow dust from the computer parts.</li> <li><input type="checkbox"/> Avoid entering the laboratory with materials that may have dust such as shoes.</li> </ul> <p>( First 3 @ 1 mark)</p>	3
8.	<p><b>Meaning of proofreading</b></p> <p>It is the process of using appropriate proofing reading like spelling and grammar checkers and autocorrect features to check whether the document has typographical or grammatical errors.</p>	2
9.	<p>a) <b>End</b> Used for moving the cursor to the end of the line been typed or already typed.</p> <p>b) <b>Insert key</b> Used for changing typing mode from insert mode to type over and vice versa (Accept the description of type over and insertion)</p> <p>c) <b>Backspace</b> Used to delete a character to left of the cursor position.</p>	1  1  1
10.	<p><b>Problems of computer hard disk</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Excessive shock like dropping it on the hard surface may cause the platters to dislocate hence reading may be a problem</li> <li><input type="checkbox"/> Contact with strong magnetic fields or static electricity may affect the device since data is saved magnetically.</li> <li><input type="checkbox"/> If the case containing the platters is opened, dust may get into it causing disk crash,</li> <li><input type="checkbox"/> Some viruses may create virtual tasks which will eventual cause the disk to be overwork hence causing it to crash</li> <li><input type="checkbox"/> Sporadic power failure may cause the disk to crash.</li> </ul> <p>(First 2@ 2 marks)</p>	4
11.	<p>a) =Count ( )</p> <p>b) =Average ( )</p> <p>NB Accept the any range given</p>	1 1

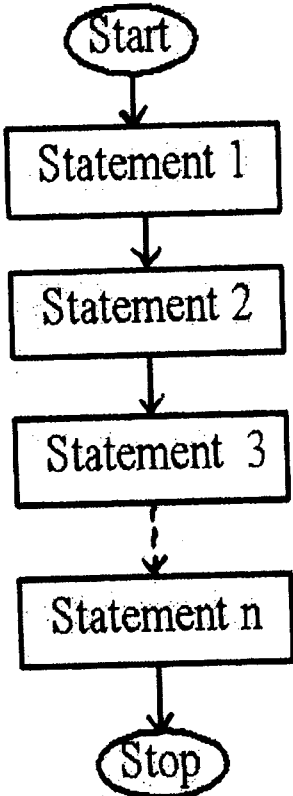
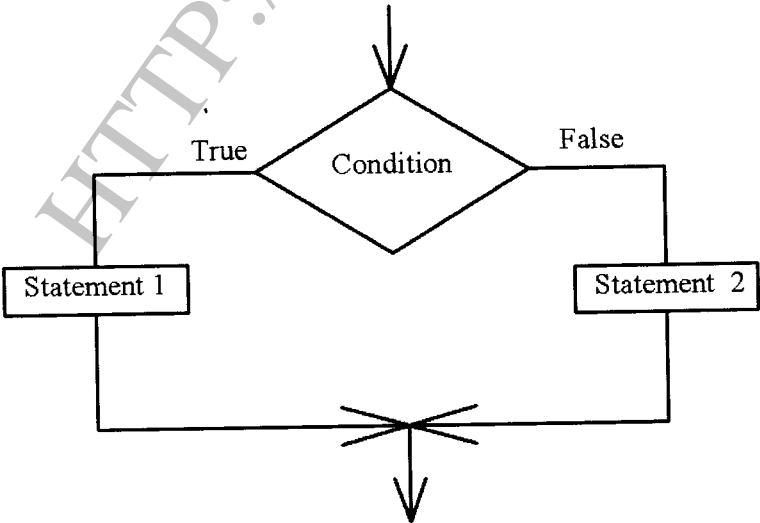


NO	ANSWER	MARKS
12.	<b>Three advantages of wireless media to the school</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> The school will find it easy to add or remove nodes on the system.</li> <li><input type="checkbox"/> In case of new building is put up, there will be no need of interfering with the communication media.</li> <li><input type="checkbox"/> Users will find it safer to move around as there are no wires around the rooms.</li> <li><input type="checkbox"/> Students will be able to roam as they access the network.</li> </ul> <b>(First 3@ 1 mark)</b>	3
13.	<b>Password which cannot be hacked.</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> By including many characters in a password</li> <li><input type="checkbox"/> By combining different characters in a password</li> <li><input type="checkbox"/> Use password generator manager.</li> </ul> <b>(Any 2@ 1 mark)</b>	2
14.	<b>Ways of minimizing repetitive strain injuries.</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Taking regular break intervals when using a computer.</li> <li><input type="checkbox"/> Use an ergonomic keyboard to avoid stress.</li> <li><input type="checkbox"/> Support wrist with wrist rest pad when using a mouse.</li> <li><input type="checkbox"/> Use of standard furniture/proper sitting posture.</li> </ul> <b>(First 2@ 1 mark)</b>	2
15.	<b>Tasks achieved using DTP</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Creating a calendar.</li> <li><input type="checkbox"/> Creating a banner.</li> <li><input type="checkbox"/> Creating a book cover.</li> <li><input type="checkbox"/> Creating business cards</li> </ul> <b>(First 4 @ 1/2 mark)</b>	2

## SECTION B

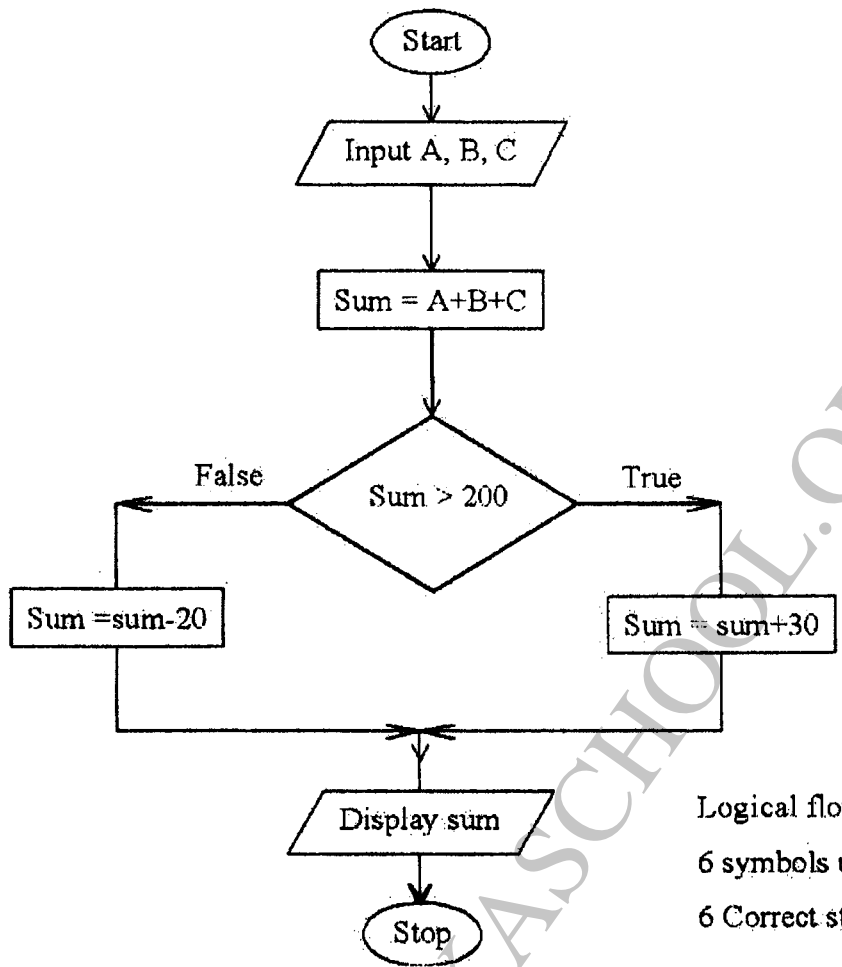
NO	ANSWER	MARKS
16.	<b>(i) Qualities of a good pseudo code.</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> should be short and clear/ precise</li> <li><input type="checkbox"/> should have start and end clearly shown.</li> <li><input type="checkbox"/> Statements should be clearly defined.</li> <li><input type="checkbox"/> should depict the logical flow of solving the problem.</li> <li><input type="checkbox"/> should not be ambiguous.</li> <li><input type="checkbox"/> it should be indented /neat / legibility</li> </ul> <b>(First 2 @ 1 mark)</b>	2



NO	ANSWER	MARKS
	<p>(ii) <b>Sequence</b></p> <p>a) Program statements are executed one after the other in the order in which they appear.</p> <p><b>Flowchart</b></p> <p><b>Flowchart</b></p>  <pre> graph TD     Start([Start]) --&gt; S1[Statement 1]     S1 --&gt; S2[Statement 2]     S2 --&gt; S3[Statement 3]     S3 -.-&gt; Sn[Statement n]     Sn --&gt; Stop([Stop]) </pre>	<p>2</p> <p>1</p>
	<p>b) <b>Selection</b></p> <p>Flow of a program is determined by a choice of one of two or more options based on a condition given.</p>  <pre> graph TD     In(( )) --&gt; Cond{Condition}     Cond -- True --&gt; S1[Statement 1]     Cond -- False --&gt; S2[Statement 2]     S1 --&gt; Join(( ))     S2 --&gt; Join     Join --&gt; Out(( )) </pre>	<p>2</p> <p>1</p>



NO	ANSWER	MARKS
17.	<p>a) <b>Arithmetic errors</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Truncation error</b> Results due to shortening or leaving out part of a number or a word.</li> <li><input type="checkbox"/> <b>Rounding off error</b> Arising by approximating a number by replacing it with a number that has fewer significant digits or one with zeros for its ending digits.</li> <li><input type="checkbox"/> <b>Overflow error</b> Occurs when the results of a computation is larger than the allocated memory space.</li> <li><input type="checkbox"/> <b>Underflow error</b> Type of error occurs when the output is low small to be represented in the chosen format.</li> </ul> <p>(First 3 @ 2 marks)</p>	6



Logical flow @ 1  
 6 symbols used @ 1/2=3  
 6 Correct statements @ 1/2 =3

NO	ANSWER	MARKS				
	<p>b) <b>User interface design considerations</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Should be user friendly.</li> <li><input type="checkbox"/> Colour, fonts and layout should be appealing to the user.</li> <li><input type="checkbox"/> Consider a consistent layout in the entire system.</li> <li><input type="checkbox"/> Should prompt user clearly.</li> <li><input type="checkbox"/> Should capture the same number of items of data as indicated in the manual data capture form.</li> </ul> <p><b>(First 3 @ 1 mark)</b></p>	3				
	<p>c) <b>Types of maintenance</b></p> <p>(i) <b>Adaptive</b> Type of maintenance that is done to make the system to adopt the changing technology e.g. changing the system because to new o/s</p> <p>(ii) <b>Perfective</b> Type of maintenance done to make the system better in its operation e.g. adding a module in a system.</p> <p>(iii) <b>Corrective</b> Type of maintenance done to correct an error in the system e.g. wrong results during addition.</p> <p><b>(3 @ 2 marks)</b></p>	2  2  2				
18.	<p><b>(a) Distinction between microwave transmission and radio transmission</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: left;">Microwave</th> <th style="width: 50%; text-align: left;">Radio Waves</th> </tr> </thead> <tbody> <tr> <td>Microwave is a type of transmission that propagates its signals in one direction at a time</td> <td>radio transmission is a type of transmission that start from a central point and spread outwards over the covered area hence they travelling in all the directions from the source.</td> </tr> </tbody> </table>	Microwave	Radio Waves	Microwave is a type of transmission that propagates its signals in one direction at a time	radio transmission is a type of transmission that start from a central point and spread outwards over the covered area hence they travelling in all the directions from the source.	4
Microwave	Radio Waves					
Microwave is a type of transmission that propagates its signals in one direction at a time	radio transmission is a type of transmission that start from a central point and spread outwards over the covered area hence they travelling in all the directions from the source.					
	<p>b) (i) Bus topology</p> <p>(ii) A - The Bus cable It is a core section of the bus topology network which has all the nodes connected to it and data pass through it.</p> <p>B – Terminator It destroys data that does not reach its destination so that it doesn't cause echo back.</p>	1  2  2				



NO	ANSWER	MARKS
	<p><b>c) Problems related to power that should be addressed</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Blackout: This is unexpected discontinuation of power supply in the laboratory.</li> <li><input type="checkbox"/> Power sage: Sudden drop of voltage levels that lasts less than a second.</li> <li><input type="checkbox"/> Transients/ surge: High voltage flowing.</li> <li><input type="checkbox"/> Brownout: Partial blackout where there's low voltage flow.</li> <li><input type="checkbox"/> Short circuit: live wires touching each other's</li> <li><input type="checkbox"/> Loose connection, which may cause tripping or total power failure (First 3 @ 2 marks)</li> </ul>	6
19.	<p><b>a) Possible responsibilities of a database admin in a school</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Carrying out school database backups.</li> <li><input type="checkbox"/> Recovering of lost school data incase of system failure.</li> <li><input type="checkbox"/> Ensuring the security and integrity of the school system.</li> <li><input type="checkbox"/> Adding new users to the school system and managing the user's accounts.</li> <li><input type="checkbox"/> Designing and developing database application for the school.</li> <li><input type="checkbox"/> Updating or maintaining database for the school.</li> </ul> <p>(First 3 @ 1 mark)</p>	3
	<p><b>b) Ways in which computers can be used in a transport industry.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use of GPS to track vehicles, flights etc.</li> <li><input type="checkbox"/> Bookings to different destinations can be done through the use of computers ( online booking).</li> <li><input type="checkbox"/> The computers can also be used to reduce the speed of vehicles and bring sanity in the industry.</li> <li><input type="checkbox"/> Managing human resource involved in the industry.</li> </ul> <p>(First 2 @ 2 marks)</p>	4
	<p><b>c) Reasons for partitioning hard disk</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> For security purposes, incase one partition fails the second partition remains functional.</li> <li><input type="checkbox"/> If she requires backup copies to be stored in the same hard disk.</li> <li><input type="checkbox"/> If she intends to install more than one operating system.</li> </ul> <p>(First 2 @ 2 marks)</p>	4
	<p><b>d) (i) Schedule feasibility</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> To determine if the proposed solution can be developed within the required time.</li> </ul> <p><b>(ii) Technical feasibility</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> To determine if the system can be supported by the available technology.</li> </ul> <p>( 2 @ 2 marks)</p>	4





NO	ANSWER	MARKS																														
20.	<p>a) <b>Functions of information system in an organization.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Process data in an organization according to the policies and objectives.</li> <li><input type="checkbox"/> Decision making by providing information that helps with strategic planning within the organization.</li> <li><input type="checkbox"/> Means of communication and flow of information to various sections of an organization / enable sharing of information.</li> <li><input type="checkbox"/> Improving quality of production, through the use of feedback mechanisms for counter checking the production with expected results.</li> </ul> <p>(First 3 @ 2 marks)</p>	6																														
	<p>b) <b>Benefits of using batch processing.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Output is increased because the processor work is uninterrupted.</li> <li><input type="checkbox"/> Low cost of operation since the tasks are processed as a group.</li> <li><input type="checkbox"/> Requires little supervision since the processing runs automatically as long as the instructions are given.</li> <li><input type="checkbox"/> Less labour required since the process is automatic.</li> <li><input type="checkbox"/> Efficient use of computer resources due to no idle time.</li> <li><input type="checkbox"/> Gives company opportunity to check any error before processing begins.</li> </ul> <p>(First 2 @ 2 marks)</p>	4																														
	<p>c)</p> <p>(i) <b>Decimal equivalent</b></p> <table border="1"> <tr> <td>Bits</td> <td>1</td> <td>1</td> <td>1</td> <td>0</td> <td>1</td> <td>.</td> <td>1</td> <td>1</td> <td></td> </tr> <tr> <td>Place value</td> <td>16</td> <td>8</td> <td>4</td> <td>2</td> <td>1</td> <td>.</td> <td>0.5</td> <td>0.25</td> <td></td> </tr> <tr> <td>Values</td> <td>16</td> <td>8</td> <td>4</td> <td>0</td> <td>1</td> <td>.</td> <td>0.5</td> <td>0.25</td> <td>29.75</td> </tr> </table> <p style="text-align: right;">@ 1</p> <p style="text-align: right;">@ 1</p> <p style="text-align: right;">= 29.75<sub>10</sub> @1</p>	Bits	1	1	1	0	1	.	1	1		Place value	16	8	4	2	1	.	0.5	0.25		Values	16	8	4	0	1	.	0.5	0.25	29.75	3
Bits	1	1	1	0	1	.	1	1																								
Place value	16	8	4	2	1	.	0.5	0.25																								
Values	16	8	4	0	1	.	0.5	0.25	29.75																							
	<p>(ii) <b>Binary operation</b></p> <p>11011<sub>2</sub> + 101<sub>2</sub></p> $  \begin{array}{r}  11011 \\  + 101 \\  \hline  10000  \end{array}  $	2																														





4.24.2 Computer Studies Paper 2 (451/2)

NO	MARKING POINTS	MARKS
1. (a)	<p><b>Typing values in the cells</b></p> <ul style="list-style-type: none"> <li>✓ Values in cell range A1: B6 @1</li> <li>✓ Margin cells A1:B1 @ 1</li> <li>✓ Text wrap in the title A1:B1 @ 1</li> <li>✓ Typing column 1 (range A9: A22) @ 1</li> <li>✓ Typing column 2 (range B9: B22) @ 2</li> <li>✓ Typing column 3 (range C9: C22) @ 1</li> <li>✓ Typing column 4 (range D9: D22) @ 1</li> <li>✓ Typing column 5 (range E9: E22) @ 1</li> <li>✓ Saving the workbook @ 1</li> </ul> <p><b>Column title text (row 8)</b></p> <ul style="list-style-type: none"> <li>✓ Typing column title text (correct, bolded and completeness-A8. H8) @ 2</li> <li>✓ Wrapping titles @ 1</li> <li>✓ Applying bold face @ 1</li> <li>✓ Applying borders to all the visible cells @ 1</li> </ul>	<b>(15 marks)</b>
(b)	<p><b>Naming the cells containing:</b></p> <ul style="list-style-type: none"> <li>✓ 1500 as SR @ 1</li> <li>✓ 2800 as DR @ 1</li> <li>✓ 3200 as VP @ 1</li> <li>✓ 300 as FR @ 1</li> </ul>	<b>(4 marks)</b>
(c) (i)	<p><b>=If (D9 = "S", C9* SR, if (D9= "D", C9 * DR, if (D9 = "V", C9 * VP)))</b></p> <p>Use of the IF function @ 1            S selection @ 2            D selection @ 2            V selection (else) @ 2            Logic and syntax @ 1</p>	<b>(8 marks)</b>
(ii)	<p><b>=If (E7 = "Yes", FR * C7, 0)</b></p> <ul style="list-style-type: none"> <li>✓ Use of the function @ 1</li> <li>✓ Selection of fridge @ 1</li> <li>✓ Alternative selection @ 1</li> </ul>	<b>(3 marks)</b>
(iii)	<ul style="list-style-type: none"> <li>✓ = G 7 * H7 @ 1</li> <li>✓ Applying other cells @ 1</li> </ul>	<b>(2 marks)</b>
(d)	<ul style="list-style-type: none"> <li>✓ Currency formats @ 1</li> <li>✓ Zero decimal formats @ <input type="checkbox"/></li> <li>✓ Formats applied in the correct range @ <input type="checkbox"/></li> </ul>	<b>(2 marks)</b>
(e) (i)	<p>Copying the content of the current worksheet to sheet 2</p>	<b>(1 mark)</b>
(ii)	<ul style="list-style-type: none"> <li>✓ Rename sheet 1 as original @ 1</li> <li>✓ Rename sheet 2 as NEW @ 1</li> </ul>	<b>(2 marks)</b>
(f) (i)	<ul style="list-style-type: none"> <li>✓ Enabling <i>filter</i> feature @ 1</li> <li>✓ Filtering out correct records (displaying S values only) @ 1</li> </ul>	<b>(2 marks)</b>

