

**DIRECTORATE OF GOVERNMENT EXAMINATION, CHENNAI -6**  
**HSE FIRST YEAR EXAMINATION, MARCH / APRIL -2023**  
**COMPUTER SCIENCE ANSWER KEY**

**NOTE :**

1. Answer written only in **BLACK** or **BLUE** ink pen should be evaluated.
2. Choose the correct answer and write the option code.
3. In one of them (option or answer) is wrong, then award zero mark only.

**Maximum Marks : 70**

**PART - I**

Answer all the questions:-

15×1=15

Write the option code and corresponding answer :-

Q.No.	Option Code	Answer
1	a	RAM
2	d	A
3	c	VGA Connector
4	d	All of the above
5	a	Shift and Delete
6	b	Specification
7	c	\n
8	a	20
9	a	main()
10	b	Mere attempt
11	b	OOP
12	b	Inline functions
13	d	The return type is also considered for overloading a function
14	a	Constructor
15	d	Warez

**Part – II**

Answer any Six questions

**Question .No. 24** is compulsory.

6×2 =12

Q.No	Answer	Mark
16	<ul style="list-style-type: none"> <li>• The control unit controls the flow of data between the CPU, memory and I/O devices.</li> <li>• It also controls the entire operation of a computer.</li> </ul>	2
17	$(15)_{10} + (20)_{10} = 01111 (15) + 10100 (20) = (100011)_2$	2

18	<b>GUI</b> <ul style="list-style-type: none"> <li>• window based system with a pointing device to direct I/O, choose from menus, make selections and a keyboard to enter text. Its vibrant colours attract the user very easily.</li> </ul>	2
19	The smallest individual unit in a program is known as a Token or a Lexical unit. <ul style="list-style-type: none"> <li>• Keywords</li> <li>• Identifiers</li> <li>• Literals</li> <li>• Operators</li> <li>• Punctuators</li> </ul>	2
20	An invariant for the loop body is known as a loop invariant. <b>(or)</b> The property of the variables which remains unchanged by the execution of the loop body is called as loop invariant.	2
21	The ability of a message or function to be displayed in more than one form.	2
22	The technique of building new classes from an existing Class. <b>(or)</b> The mechanism of deriving new class from an existing class is called inheritance.	2
23	Someone edits a program source so that the code can be exploited or modified.	2
24	OUTPUT : 87.2525 87	1 1

### Part – III

Answer any Six questions **Q.No.33** is compulsory.

6×3=18

25	Characteristics of a computer <ul style="list-style-type: none"> <li>• Speed</li> <li>• Accuracy</li> <li>• Reliability</li> <li>• Diligence</li> <li>• Multi Processing</li> <li>• Memory</li> </ul>	3
26	<ul style="list-style-type: none"> <li>• Reduced Instruction Set Computers (RISC).</li> <li>• Complex Instruction Set Computers (CISC).</li> </ul>	3

27	<p><b>Method I:</b></p> <ul style="list-style-type: none"> <li>• Open <b>Computer Icon</b>. Open any drive where you want to create a new folder.</li> <li>• Click on File → New → Folder, Type in the folder name and press Enter key.</li> </ul> <p><b>Method II:</b></p> <ul style="list-style-type: none"> <li>• Right click → New → Folder.</li> </ul>	3
28	<p><b>Advantage :</b></p> <ul style="list-style-type: none"> <li>• For each task a fixed time is allocated.</li> <li>• The processor switches rapidly between various processes after a time is elapsed or the process is completed</li> </ul> <p><b>Disadvantage :</b></p> <ul style="list-style-type: none"> <li>• Unreliability during data transmission</li> </ul>	3
29	<p>It compares the contents of string1 and string2 lexicographically.</p> <p><b>General Form:</b></p> <p><b>strcmp(String1, String2)</b></p> <ul style="list-style-type: none"> <li>• Positive value if the first differing character in string1 is greater than (&gt;) the corresponding character in string2.</li> <li>• Negative value if the first differing character in string1 is less than (&lt;) the corresponding character in string2.</li> <li>• 0 if string1 and string2 are equal (==).</li> </ul>	3
30	<p><b>Access specifiers.</b></p> <ul style="list-style-type: none"> <li>• <b>Private Members</b> : Cannot be accessed from outside the class.</li> <li>• <b>Public Members</b> : Accessible from anywhere outside the class but within a program.</li> <li>• <b>Protected Members</b> : Similar to a private member but it provides one additional benefit that they can be accessed in child classes.</li> </ul>	3
31	<p><b>Encryption:</b></p> <ul style="list-style-type: none"> <li>• Processes that ensure confidentiality that only authorized persons can access the information.</li> <li>• The process of translating the plain text data into random and mangled data.</li> <li>• Used by militaries and governments to facilitate secret communication.</li> </ul> <p><b>(Note: Marks given if any two points)</b></p> <p><b>Decryption:</b></p> <ul style="list-style-type: none"> <li>• Reverse process of converting the cipher-text back to plaintext.</li> </ul>	3

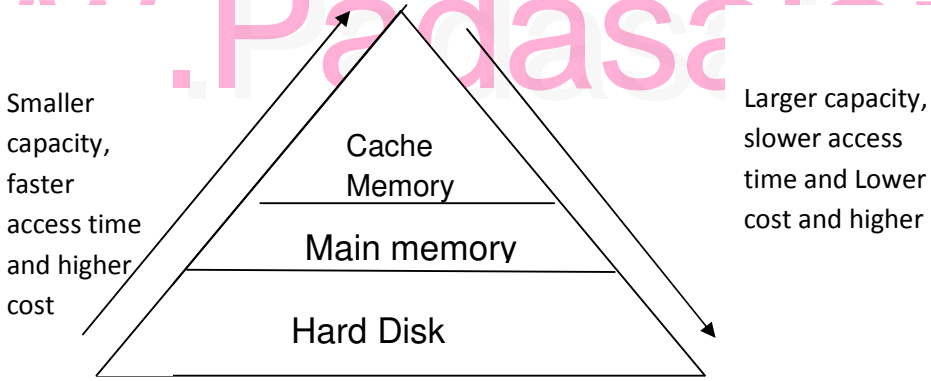
32	<ul style="list-style-type: none"> <li>• With the objectives of spreading Tamil to the entire world through internet, Tamil Virtual University was established by the Govt. of Tamilnadu.</li> <li>• This organization functions with the name of “Tamil Virtual Academy”.</li> <li>• It offers different courses in Tamil language, Culture, heritage etc.,</li> </ul>	3
33	<pre>#include&lt;iostream&gt; using namespace std; int main() {     int i;     for(i=1;i&lt;=10;i++)     {         if(i==5)         {             continue;         }         cout&lt;&lt;i&lt;&lt;"\n";     }     return 0; }</pre> <p><b>Output:</b> 1,2,3,4,6,7,8,9,10</p> <p><b>( Note: Marks can be given if it is written in any suitable method)</b></p>	3

## Part – IV

Answer all of the following Questions

5×5=25

34 a)	First Generation	1940-1956 (Vacuum tubes)	5
	Second Generation	1956-1964 (Transistors)	
	Third Generation	1964-1971 (Integrated Circuits)	
	Fourth Generation	1971-1980 (Microprocessor VLSI)	
	Fifth Generation	1980-Till (ULSI)	
	Sixth Generation	In future	
	<b>Explain Merits and Demerits.</b>		
<b>(or)</b>			

34 b)	<p>The following algorithms are mainly used to allocate the job (process) to the processor.</p> <ol style="list-style-type: none"> <li>1. FIFO (First in First Out).</li> <li>2. SJF (Shortest Job First).</li> <li>3. Round Robin.</li> <li>4. Based on Priority.</li> </ol> <p>Explain the above.</p>	5
35 (a)	<p>(i) The procedure to convert fractional decimal to binary.</p> <p>Step 1: Multiply the decimal fraction by 2 and note the integer part.</p> <p>Step 2: Discard the integer part of the previous product. Multiply the fractional part of the previous product by 2. Repeat Step 1 until the same fraction repeats or terminates (0).</p> <p>Step 3: The resulting integer part forms a sequence of 0s and 1s that become the binary equivalent of decimal fraction.</p> <p>Step 4: The final answer is to be written from first integer part obtained till the last integer part obtained.</p> <p>(ii) <math>(98.46)_{10} = 98 = 1100010, 46 = .011101 = (1100010.011101)_2</math></p>	2           3
(or)		
35 (b)		5
36 (a)	<p><b>Binary Operators</b> - Require two operands</p> <ul style="list-style-type: none"> <li>• Arithmetic Operators      + - * / %</li> <li>• Relational Operators      &gt; &lt; &gt;= &lt;= == !=</li> <li>• Logical Operators          &amp;&amp;   </li> <li>• Assignment Operators      += -= *= /= %=</li> </ul> <p>Explain the above.</p>	5
(or)		

36 (b)	<ul style="list-style-type: none"> <li>Copies the value of an actual parameter into the formal parameter of the function.</li> <li>Changes made to formal parameter within the function will have no effect on the actual parameter.</li> </ul> <p>(Written in any suitable example)</p>	5																				
37 (a)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;"><b>Constructor</b></th> <th style="width: 50%; text-align: center;"><b>Destructor</b></th> </tr> </thead> <tbody> <tr> <td>The name of the constructor must be same as that of the class.</td> <td>The destructor has the same name as that class prefixed by the tilde character '~'.</td> </tr> <tr> <td>No return type can be specified for constructor .</td> <td>It has no return type</td> </tr> <tr> <td>A constructor can have parameter list.</td> <td>The destructor cannot have arguments.</td> </tr> <tr> <td>The constructor function can be overloaded.</td> <td>Destructors cannot be overloaded .</td> </tr> <tr> <td>They cannot be inherited but a derived class can call the base class constructor.</td> <td>They cannot be inherited.</td> </tr> <tr> <td>The compiler generates a constructor, in the absence of a user defined constructor.</td> <td>In the absence of user defined destructor, it is generated by the compiler.</td> </tr> <tr> <td>The constructor is executed automatically when the object is created.</td> <td>The destructor is executed automatically when the control reaches the end of class scope to destroy the object.</td> </tr> <tr> <td colspan="2" style="text-align: center;"><b>(Note : Marks given if any five points)</b></td> </tr> <tr> <td colspan="2" style="text-align: center;"><b>(or)</b></td> </tr> </tbody> </table>	<b>Constructor</b>	<b>Destructor</b>	The name of the constructor must be same as that of the class.	The destructor has the same name as that class prefixed by the tilde character '~'.	No return type can be specified for constructor .	It has no return type	A constructor can have parameter list.	The destructor cannot have arguments.	The constructor function can be overloaded.	Destructors cannot be overloaded .	They cannot be inherited but a derived class can call the base class constructor.	They cannot be inherited.	The compiler generates a constructor, in the absence of a user defined constructor.	In the absence of user defined destructor, it is generated by the compiler.	The constructor is executed automatically when the object is created.	The destructor is executed automatically when the control reaches the end of class scope to destroy the object.	<b>(Note : Marks given if any five points)</b>		<b>(or)</b>		5
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37 (b)	<p>Output :</p> <p style="margin-left: 40px;">Monitor Speaker Printer Scanner Keyboard</p> <p style="text-align: center;">(or)</p> <p>Error (or) any relevant error message.</p>	5																				

38 (a)	1. Virus 2. Worms 3. Spyware 4. Ransomware 5. Pharming 6. Cyber Security Threats 7. Phishing 8. Man In The Middle (MITM)			5
	(Note : Any five with explanation)			
(or)				
38 (b)	S.No.	Error	Corrected	5
	1	\$include<iostream>	#include<iostream>	
	3	class base()	class base	
	5	public	public:	
	10	!base()	~base()	
	13	};	}	
	14	}	};	
	15	Class derived : : public base	class derived:public base	
	17	public	public:	
	22	!derived()	~derived()	
	27	Class derived1 : : public derived	class derived1 : public derived	
	30	derived1();	derived1()	
	34	derived1();	~derived1()	
	38	}	};	
39	int main():	int main()		

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