SHRI KRISHNA ACADEMY

NEET, JEE & BOARD EXAM(10th,+1,+2) COACHING CENTRE

SBM SCHOOL CAMPUS, TRICHY MAIN ROAD, NAMAKKAL

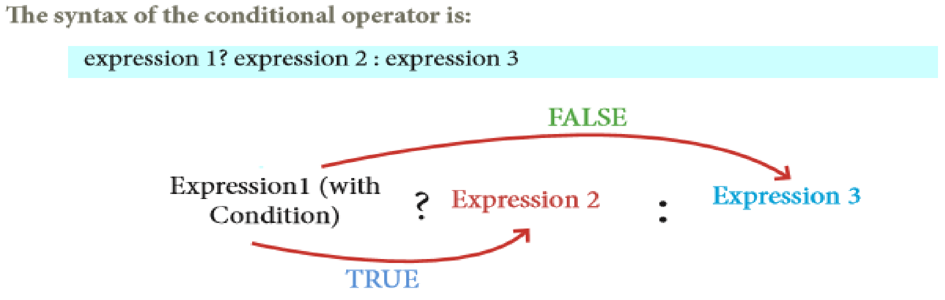
CELL: 99655 31727, 94432 31727

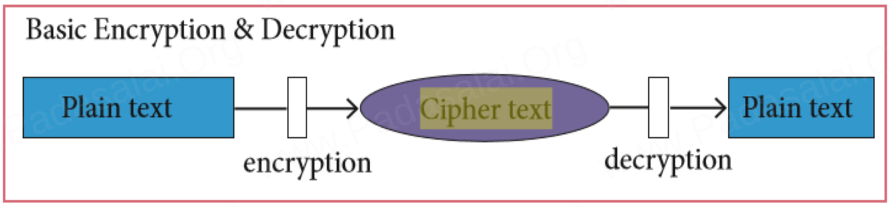
HALF -YEARLY EXAMINATION-2019

STD: XI **20.12.2019**

SUBJECT: Computer Science **TENTATIVE ANSWER KEY** **MARKS: 70**

Q.NO	SECTION-I	MARKS
1	c)vacuum tubes	1
2	b)BUS	1
3	d)Language processor	1
4	a)sleep	1
5	c)variables	1
6	d)u,v=20,30	1
7	a)Loop invariant	1
8	b)>>	1
9	a)5	1
10	b)switch	1
11	d)4	1
12	c)class	1
13	b)Member function	1
14	a)+	1

15	c)Firewall	1
Q.NO	**SECTION-II**	**MARKS**
16	• When the system restarts or when Reset button is pressed, we call it Warm Booting or Soft Booting. • The system does not start from initial state and so all diagnostic tests need not be carried out in this case. • There are chances of data loss and system damage as the data might not have been stored properly.	2
17	• High Definition Multimedia Interface (HDMI) is an audio/ video interface which transfers the uncompressed video and audio data from a video controller, to a compatible computer monitor, LCD projector, digital television etc.	2
18	• The Operating Systems should be robust. When there is a fault, the Operating System should not crash, instead the Operating System have fault tolerance capabilities and retain the existing state of system.	2
19	• A function that calls itself is known as recursive function. And, this technique is known as recursion. Note: Question is wrong because of not mentioned c++ or algorithm.	2
20	• Setw manipulator sets the width of the field assigned for the output. The field width determines the minimum number of characters to be written in output. Syntax : setw (number of characters); Example : cout <<setw (25) <<"Net Pay : "<<setw (10)<< np <<end;	2
21	(i)In C++, there is only one condition operator is used. ?: is a conditional Operator. This is a Ternary Operator. This operator is used as an alternate to if ... else control statement. (ii)The conditional operator that consists of two symbols (?:). It takes three arguments  The syntax of the conditional operator is: expression 1? expression 2 : expression 3 FALSE Expression1 (with Condition) ? Expression 2 : Expression 3 TRUE	2

	Eg: largest = (a>b)? a : b;	
22	- To allocate memory space to the object and - To initialize the data member of the class object	2
23	- Encryption is the process of translating the plain text data (plaintext) into random and mangled data (called cipher-text). - Decryption is the reveres process of converting the cipher-text back to plaintext. - Encryption and decryption are done by cryptography.  Basic Encryption & Decryption Plain text Cipher text Plain text encryption decryption	2

24	- The structure declared within another structure is called a nested structure.
	Example:
	struct Student
	{
	int age;
	float height, weight;
	struct dob
	{
	int date;
	char month[4];
	int year;
	};
	}mahesh;
		2

25	**SECTION-III** - **word length** Word length refers to the number of bits processed by a Computer's CPU. For example, a word length can have 8 bits, 16 bits, 32 bits and 64 bits. - **bit** The data is a fact about people, places or some object. In a program, a value assigned to a variable is called a data.	**3**
26	**Serial Port** : To connect the external devices, found in old computers. **Parallel Port** : To connect the printers, found in old computers. **USB Ports** : To connect external devices like cameras,	3

	scanners, mobile phones, external hard disks and printers to the computer. **VGA Connector**: To connect a monitor or any display device like LCD projector. **Audio Plugs** : To connect sound speakers, microphone and headphones. **PS/s Port** : To connect mouse and keyboard to PC **SCSI Port** : To connect the hard disk drives and network connectors.	
27	• Access applications (programs) on the computer (word processing, games, spread sheets, calculators and so on). • Load any new program on the computer. • Manage hardware such as printers, scanners, mouse, digital cameras etc., • File management activities (For example creating, modifying, saving, deleting files and folders). • Change computer settings such as colour scheme, screen savers of your monitor, etc.	3
28	• We need a notation to represent algorithms. There are mainly three different notations for representing algorithms. • A programming language is a notation for expressing algorithms to be executed by computers. • Pseudo code is a notation similar to programming languages. Algorithms expressed in pseudo code are not intended to be executed by computers, but for communication among people. • Flowchart is a diagrammatic notation for representing algorithms. They give a visual intuition of the flow of control, when the algorithm is executed.	3
29	• Sequence of characters enclosed within double quotes are called as String literals. By default, string literals are automatically added with a special character '\0' (Null) at the end. Example:"A", "Welcome" "1234"	3
30	• In C++, one can assign default values to the formal parameters of a function prototype. The default arguments allows to omit some arguments allows to omit some argument when calling the function. • For any missing arguments, complier uses the values in default arguments for the called function. • The default value is given in the form of variable initialization. Example : void defaultvalue (int n1, n2=100);	3

31	• The destructor has the same name as that of the class prefixed by the tilde character '~'. • The destructor cannot have arguments • It has no return type • Destructors cannot be overloaded i.e., there can be only one destructor in a class • In the absence of user defined destructor, it is generated by the compiler • The destructor is executed automatically when the control reaches the end of class scope to destroy the object • They cannot be inherited	3
32	• TSCII (Tamil Script Code for Information Interchange) is the first coding system to handle our Tamil language in an analysis of an encoding scheme that is easily handled in electronic devices, including non-English computers. • This encoding scheme was registered in IANA (Internet Assigned Numbers Authority) unit of ICANN.	3
33	• Precedence and Associativity of an operator cannot be changed. • No new operators can be created, only existing operators can be overloaded. • Cannot redefine the meaning of an operator's procedure. You cannot change how integers are added.Only additional functions can be to an operator. • Overloaded operators cannot have default arguments. • When binary operators are overloaded, the left hand object must be an object of the relevant class.	3
Q.NO	**SECTION-IV**	**MARKS**
34	A Microprocessor's performance depends on the following characteristics: • Clock speed • Instruction set • Word size. **CLOCK SPEED:** Every microprocessor has an internal clock that regulates the speed at which it executes instructions. The speed at which the microprocessor executes instructions is called the clock speed. Clock speed is measured in MHz (Mega Hertz) or in GHz (Giga Hertz). **INSTRUCTION SET:** A command which is given to a computer to perform an operation on data is called an instruction. Basic set of machine level instructions that a microprocessor is designed to execute is called as an instruction set. This instruction set carries out the following types of operations: • Data transfer • Arithmetic operations • Logical operations • Control flow	5

	• Input/output **WORD SIZE :** • The number of bits that can be processed by a processor in a single instruction is called its word size. • Word size determines the amount of RAM that can be accessed by a microprocessor at one time and the total number of pins on the microprocessor. • Total number of input and output pins in turn determines the architecture of the microprocessor.	
34 (b)	• An algorithm is a sequence of instructions to accomplish a taks or solve a problem. • Specification: The first step in problem solving is to state the problem precisely. A problem is specified in terms of the input given and the output desired. The specification must also state the properties of the given input, and the relation between the input and the output. • Abstraction: A problem can involve a lot of details. Several of these details are unnecessary for solving the problem. Only a few details are essential. Ignoring or hiding unnecessary details and modeling an entity only by its essential properties is known as abstraction. • Composition: An algorithm is composed of assignment and control flow statements. A control flow statement tests a condition of the state and, depending on the value of the condition, decides the next statement to be executed. • Decomposition: We divide the main algorithm into functions. We construct each function independently of the main algorithm and other functions. Finally, we construct the main algorithm using the functions. When we use the functions, it is enough to know the specification of the function. It is not necessary to know how the function is implemented.	5
35	• Type Conversion: The process of converting one fundamental type into another is called as "Type Conversion". C++ provides two types of conversions. (1) Implicit type conversion (2) Explicit type conversion. **Implicit type conversion:** • An Implicit type conversion is a conversion performed by the compiler automatically. So, implicit conversion is also called as "Automatic conversion". • This type of conversion is applied usually whenever different data types are intermixed in an expression. If the type of the operands differ, the compiler converts one of them to match with the other, using the rule that the "smaller" type is converted to the "wider" type, which is called as "Type Promotion". For example:	5

	#include <iostream>
	using namespace std;
	int main()
	{
	int a=6;
	float b=3.14;
	cout << a+b;
	}
	- Explicit type conversion
	C++ allows explicit conversion of variables or expressions from one data type to another specific data type by the programmer. It is called as “type casting”.
	Syntax:
	(type-name) expression;
	Where type-name is a valid C++ data type to which the conversion is to be performed.
	Example:
	#include <iostream>
	using namespace std;
	int main( )
	{
	float varf=78.685;
	cout << (int) varf;
	}	

35(B)	**If-statement:**
	The if statement evaluates a condition, if the condition is true then a true-block (a statement or set of statements) is executed, otherwise the true-block is skipped.
	syntax:
	if (expression)
	true-block;
	statement-x;
	Example program:
	#include <iostream>
	using namespace std;
	int main()
	{
	int age;
	cout<< "\n Enter your age: "; cin>> age;
	if(age>=18)
	cout<< "\n You are eligible for voting ....";
	cout<< "This statement is always executed.";
	return 0;
	}
	If else-statement:
	- In if-else statement, first the expression or condition is evaluated either true of false. If the result is true, then the statements inside true-block is executed and false-block is skipped. If the result is
		5

false, then the statement inside the false-block is executed i.e., the true-block is skipped.

Syntax:

```
if ( expression)
{
True-block;
 }
 else
 {
False-block;
 }
Statement-x
```

Example program:

```
#include <iostream>
 using namespace std;
int main()
{
int num, rem;
cout<< "\n Enter a number: ";
cin>>num;
rem = num % 2;
 if (rem==0)
 cout<< "\n The given number" <<num<< " is Even";
 else
cout<< "\n The given number "<<num<< " is Odd";
 return 0;
 }
```

If nested inside if part:

- An if statement contains another if statement is called nested if. The nested can have one of the following three forms.
- 1. If nested inside if part
- 2. If nested inside else part
- 3. If nested inside both if part and else part

Syntax:

```
if (expression-1)
 { if (expression)
{
 True_Part_Statements;
 }
 Else
 {
  False_Part_Statements;
 }
}
else
       body of else part;
```

If nested inside else part

```
 if (expression-1)
{
 body of true part;
 }
 else
{
 if (expression)
{
    True_Part_Statements;
 }
 Else
 {
   False_Part_Statements;
 }
 }
```

If nested inside both if part and else part

```
if (expression)
{
 if (expression)
 {
True_Part_Statements;
}
 Else
 {
False_Part_Statements;
}
 }
 Else
 {
 if (expression)
 {
True_Part_Statements;
 }
 Else
 {
 False_Part_Statements;
}
}
```

Example:

```
#include <iostream>
 using namespace std;
int main()
 {
 int sales, commission;
char grade;
 cout << "\n Enter Sales amount: ";
cin >> sales;
 cout << "\n Enter Grade: ";
cin >> grade;
 if (sales > 5000)
 {
commission = sales * 0.10;
```

	cout << "\n Commission: " << commission;
	}
	else
	{
	commission = sales * 0.05;
	cout << "\n Commission: " << commission;
	}
	cout << "\n Good Job ..... "; return 0;
	}	

36	$S = 1 + x + x^2 + ... + x^n$
	Program
	using namespace std;
	#include<iostream>
	int main ( )
	{
	int sum=1,x,i,t,n;
	cout<<"\nEnter N value",;
	cin>>n;
	cout<<"\nEnter x value …";
	cin>>x;
	t=x;
	for (i=1;i<=n;i++)
	{
	sum=sum + t;
	t = t* x;
	}
	cout<<"SUM="<<sum;
	}
		5

36(or)

5

Isalnum():

This function is used to check whether a character is alphanumeric or not. This function returns non-zero value if c is a digit or a letter, else it returns 0.

Syntax:

```
int isalnum (char c)
```

Example :

```
int r = isalnum('5');
cout << isalnum('A') <<'\t'<<r;
```

isdigit( )

This function is used to check whether a given character is a digit or not. This function will return 1 if the given character is a digit, and 0 otherwise.

Syntax:

```
int isdigit(char c);
```

Eg: cout<<"\n The Return Value of isdigit(ch) is :" << isdigit(ch) ;

strcpy( )

The strcpy() function takes two arguments: target and source. It copies the character string pointed by the source to the memory location pointed by the target. The null terminating character (\0) is also copied.

Eg:

```
int main()
{
char source[] = "Computer Science";
char target[20]="target";
strcpy(target,source);
}
```

strcmp() function:

The strcmp() function takes two arguments: string1 and string2. It compares the contents of string1 and string2 lexicographically.

The strcmp() function returns a:

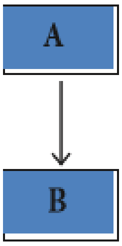
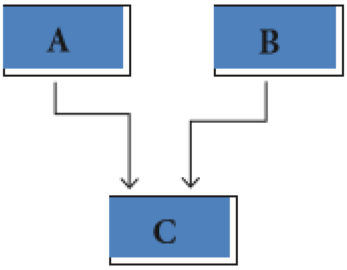
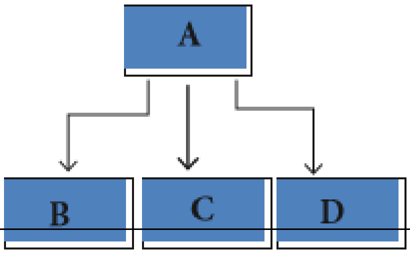
- Positive value if the first differing character in string1 is greater than the corresponding character in string2. (ASCII values are compared)
- Negative value if the first differing character in string1 is less than the corresponding character in string2.
- 0 if string1 and string2 are equal.

Example:

```
int main()
{
char string1[] = "Computer";
char string2[] = "Science"; int result;
result = strcmp(string1,string2);
if(result==0)
{
cout<<"String1 : "<<string1<<" and String2 : "<<string2 <<"Are Equal";
}
if (result<0)
```

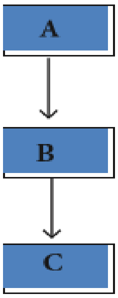
	{ cout<<"String1 :"<<string1<<" and String2 : "<<string2 <<" Are Not Equal";
	}
	}
	Strcat()
	The strcat() function takes two arguments: target and source. This function appends copy of the character string pointed by the source to the end of string pointed by the target.
	Eg;
	int main()
	{
	char target[50] = "Learning C++ is fun";
	char source[50] = " , easy and Very useful";
	strcat(target, source);
	cout << target ; return 0;
	}	

37	**Encapsulation** • The mechanism by which the data and functions are bound together into a single unit is known as Encapsulation. It implements abstraction. • Encapsulation is about binding the data variables and functions together in class. It can also be called data binding. • Encapsulation is the most striking feature of a class. The data is not accessible to the outside world, and only those functions which are wrapped in the class can access it. These functions provide the interface between the object's data and the program. This encapsulation of data from direct access by the program is called data hiding or information hiding. **Data Abstraction** • Abstraction refers to showing only the essential features without revealing background details. Classes use the concept of abstraction to define a list of abstract attributes and function which operate on these attributes. They encapsulate all the essential properties of the object that are to be created. The attributes are called data members because they hold information. The functions that operate on these data are called methods or member function. **Modularity** • Modularity is designing a system that is divided into a set of functional units (named modules) that can be composed into a larger application. **Inheritance** • Inheritance is the technique of building new classes (derived class) from an existing Class (base class). The most important advantage of inheritance is code reusability. **Polymorphism** • Polymorphism is the ability of a message or function to be displayed in more than one form. **Advantages of OOP** **Re-usability:** "Write once and use it multiple times" you can achieve this by using **class. Redundancy:** Inheritance is the good feature for data redundancy. If you need a same functionality in multiple class you can write a common class for the same functionality and inherit that class to sub class.	5

	Easy Maintenance: It is easy to maintain and modify existing code as new objects can be created with small differences to existing ones. Security: Using data hiding and abstraction only necessary data will be provided thus maintains the security of data. **Disadvantages of OOP** **Size:** Object Oriented Programs are much larger than other **programs.** **Effort:** Object Oriented Programs require a lot of work to **create.** **Speed:** Object Oriented Programs are slower than other programs, because of their size.	
37 (B)	Enter the age: 23 Enter the height: 161.5 Enter the weight: 45 Your details Age:23 Height:161.5 Weight:45	5
38(a)	**Types of Inheritance:** There are different tyupe4s of inheritance viz, Single Inheritance, Multiple inheritance, Multilevel inheritance, hybrid inheritance and hierarchical , hierarchical inheritance. 1.singel inheritance: When a derive class inherits only from, one based class, it is known as single inheritance.  Single Inheritance 2.multiple Inheritance: When a derived class inherits from multiple base classes it is known as multiple inheritance,  Multiple Inheritance 3.Hierarchical inheritance: When more than one derived classes are created from a gingel base cvlass, it is known as Hierarchical inheritance.  Hierarchical Inheritance	5

4.Multilevel Inheritance

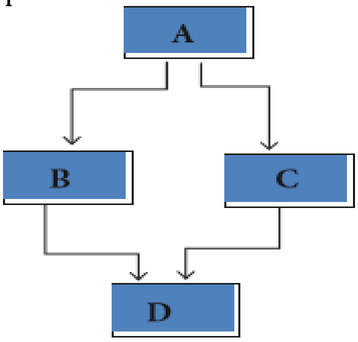
The transitive nature of inheritance is itself reflected by this form of inheritance, When a class is derived from a class which is a derived class -then it is referred to as multilevel inheritance.



Multilevel Inheritance

5. Hybrid inheritance:

When there is a combination of more than one type of inheritance it is known as hybrind inheritance, Hence, it may be a combination of Multilevel and multiple inheritance or Hierarchical and Multilevel inheritance or Hierarchical, multilevel and multiple inheritances.



Hybrid Inheritance

ii) The following points should be observed for defining the derived class.

- ❖ The Key word class has to be used
- ❖ The name of the derived class is to be given after the keyword class.
- ❖ A single colon
- ❖ The type of derivation (the visibility mode), namely private, public or protected, If no visibility mode is specified, then by defau.lt the visibility mode is considered as private
- ❖ The names of all base classes(parent classes) separated by comma.

```
class derived _class _name: visibility _ mode base_class_name
{
 // members of  derived class
};
```

	L.NO	ERROR -CODE	CORRECT-CODE
b)	1	#include<stream>	#include<**io**stream>
	2	using namespacestd:	using namespacestd**;**
	3	classes Box	class Box
	6	public::	public**:**
	8	int printWidth( )	**void** printWidth( )
	15	void Box?:: setWidth(double w,double l)	Void Box**::**setWidth(double w,double l)
	19	missing	};
	20	int MAIN()	int main()
	22	Box obj;	Box b;
	24	b.print width();	b.printwidth();

MARK ANALYSIS

PART	Questions	Total Questions	Book Back Questions	Interior Questions	Total Marks
I	1 Mark	15	05	10	15
II	2 Marks	09	04	05	18
III	3 Marks	09	02	07	27
IV	5 Marks	10	04	06	50
Total Marks		110	39	71	110
Percentage			36 %	64 %	100%

PREPARED BY:

Department of Computer Science

SHRI VIDHYABHARATHI MATRIC.HR.SEC.SCHOOL

SAKKARAMPALAYAM , AGARAM (PO) ELACHIPALAYAM

TIRUCHENGODE(TK), NAMAKKAL (DT) PIN-637202

Cell : 9003937747