16EC5A5 / 12EC5A1

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RV COLLEGE OF ENGINEERING®

(An Autonomous Institution affiliated to VTU)

V Semester B. E. Examinations Nov/Dec-19

Electronics and Communication Engineering

OBJECT ORIENTED PROGRAMMING IN C++ (ELECTIVE)

Time: 03 Hours ***Maximum Marks: 100***

Instructions to candidates:

1. Answer all questions from Part A. Part A questions should be answered in first three pages of the answer book only.
2. Answer FIVE full questions from Part B. In Part B question number 2, 7 and 8 are compulsory. Answer any one full question from 3 and 4 & one full question from 5 and 6

PART-A

1	1.1	The polymorphism in $C++$ is supported by _____ and _____.	01

	1.2	On executing the following code, how many times would the message "keep it up" would be generated?
		$\#include < iostream.h >$
		$void\ main(\ )$
		{
		$int\ x;$
		$for(x = -1; x \leq 10; x++)$
		{
		$if(x < 5)$
		$continue;$
		$else$
		$break;$
		$cout \ll$ "Keep it up\n;"
		}
		}
			01

	1.3	What is the difference between function declaration and function definition?	01
	1.4	What do you mean by scope and lifetime of a variable?	01

	1.5	What is the output of the following code?
		$\#include < iostream.h >$
		$void\ main(\ )$
		{
		$char^{*}str = "RVCE";$
		$float\ b = 3.14;$
		$float^{*}c;$
		$c = \&b;$
		$if\big(sizeof(str) == sizeof(c)\big)$
		$cout \ll "Equal";$
		$else$
		$cout \ll "Unequal";$
		}
			01

1.6	What is data abstraction?	01
1.7	Code reusability in $C++$ is supported by _____ and _____.	01
1.8	What is the use of static member data?	01
1.9	What is istream?	01
1.10	Why the stream object must be passed by reference to operator function of << or >> operators?	01

1.11	What is the output of the following code? Assume $str2$ is allocated sufficient memory to copy a string.
	
	$\#include < iostream.h >$
	$void\ stringcopy(char^*, char^*);$
	$void\ main(\ )$
	{
	$\ \ char\ str[\ ] = "Bangalore";$
	$\ \ char^* str2;$
	$\ \ stringcopy(str, str2);$
	$\ \ while(\ ^* str2++)$
	$\ \ \ \ cout \ll\ ^* str2;$
	}
	$void\ stringcopy(char^* str, char^* str2);$
	{
	$\ \ while(\ ^* str)$
	$\ \ \ \ ^* str2++ =\ ^* str++;$
	$\ \ ^* str2 =' \backslash 0';$
	$\ \ return;$
	}
		02

1.12	What is the output of the following code?
	
	$\#include < iostream.h >$
	$class\ sample$ {
	$\ \ int\ i;$
	$\ \ float\ f;$
	$public$:
	$\ \ void\ setdata(int\ i, int\ f)$
	$\ \ {$
	$\ \ \ \ i = i;$
	$\ \ \ \ f = f;$
	$\ \ }$
	$\ \ void\ showdata(\ )$
	$\ \ {$
	$\ \ \ \ cout \ll i \ll endl \ll f;$
	$\ \ }$
	};
	$void\ main(\ )$
	{
	$\ \ sample\ temp;$
	$\ \ temp.setdata(2,6);$
	$\ \ temp.showdata(\ );$
	}
		02

1.13	Differentiate between static and dynamic memory allocation.	02

	1.14	What is the output of the following program? $\#include < iostream.h >$ $void\ main(\ \ )$ $\{$ $\quad int\ i = 4;$ $\quad switch(i)$ $\quad \{$ $\quad\quad default:$ $\quad\quad\ cout \ll "\backslash n\ A\ mouse\ is\ an\ elephant\ built\ by\ Japanese";$ $\quad\quad case\ 1:$ $\quad\quad\ cout \ll endl \ll "Breeding\ rabbits\ is\ a\ hare\ raising\ experience";$ $\quad\quad\ break;$ $\quad\quad case\ 2:$ $\quad\quad\ cout \ll "\backslash n" \ll\ "Friction\ is\ drag";$ $\quad\quad\ break;$ $\quad\quad case\ 3:$ $\quad\quad\ cout \ll' \backslash\ n' \ll "Practice\ makes\ perfect, then\ nobody\ is\ perfect";$ $\quad\quad \}$ $\}$	02
	1.15	Differentiate between standard datatypes and user defined datatypes.	02

PART-B

2	a	Describe different features of $C++$.	08
	b	What is function overloading? Write a program to demonstrate the same and write the corresponding output.	08
3	a	Write a program to demonstrate copy constructor and overloaded assignment operator.	08
	b	Write a program to create a class $COMPLEX$ with two integer data members to represent real and complex part of a complex number. Add suitable member functions to perform addition and multiplication of complex numbers. Write the corresponding output.	08
		OR	
4	a	Write a program to create a class $TIME$ with three integer data members to represent hour, minutes and seconds of a time. Add suitable member functions to initialize the data members and add two $TIME$ objects. Show the corresponding output.	08
	b	Write a program to demonstrate static data members and static member functions.	08
5	a	Write a program to demonstrate overloading increment operator in prefix and postfix notations.	08
	b	What is operator overloading? Describe the advantages of the same.	08
		OR	

6	a	Illustrate pointer arithmetic with appropriate program statements.	06
	b	Write a $C++$ program to create a class $DISTANCE$ with data members feet and inches. Define constructors to initialize $DISTANCE$ objects Overload $'-'$ operator to subtract two $DISTANCE$ objects and assign to another $DISTANCE$ object. Write overloaded << operator function to display the data of each object.	10
7	a	Differentiate between stack and queue using suitable diagrams.	06
	b	Create a class $STACK$ with a floating point array as data member. Write a program to illustrate pushing and popping float numbers with respect to stack. Define member functions outside the class.	10
8	a	What are multiple inheritances? Explain the same with a program.	10
	b	What is a stream? Explain the hierarchy of $C++$ stream classes with diagram.	06