Version No.				
4	0	0	7	2

ROLL NUMBER					

COMPUTER SCIENCE
HSSC-II

SECTION – A (Marks 13)

Time allowed: 20 Minutes

Section – A is compulsory. All parts of this section are to be answered on this page and handed over to the Centre Superintendent. Deleting/overwriting is not allowed.

Do not use lead pencil.

حصہ اول لازمی ہے۔ اس کے جوابات اسی صفحہ پر دے کر نگران مرکز کے حوالے کریں۔ کاٹ کر دوبارہ لکھنے کی اجازت نہیں ہے۔ لیڈ پنسل کا استعمال ممنوع ہے۔

Answer Sheet No. _____

ہر سوال کے سامنے دیے گئے، کریکولم کے مطابق درست دائرہ کو پر کریں۔ **Invigilator Sign.** _____

Fill the relevant bubble against each question according to curriculum: **Candidate Sign.** _____

	Question	A	B	C	D	A	B	C	D
1.	The technique that reuses an existing class to build a new class is known as:	Polymorphism	Inheritance	Data hiding	Function overloading	○	○	○	○
2.	The program in execution is called:	Web browser	File	Kernel	Process	○	○	○	○
3.	In flow chart the (parallelogram) symbol is used to represent: 	Arithmetic operations	Start	Decision	Input/output operations	○	○	○	○
4.	The step by step procedure to solve a problem is called:	Direct implementation	Algorithm	Flow chart	Coding	○	○	○	○
5.	In file handling stream is a:	Series of variable address	Series of variables	Series of bytes	Series of constants	○	○	○	○
6.	A type of member function that is preceded by tilde sign ~ is called:	Polymorphism	Destructor	Object	Constructor	○	○	○	○

7.	What will be the output of the following expression?
	`int x=20, y=3;`
	`cout<<x%y;`
		2	6	0	5	○	○	○	○

8.	Which of the following loops is called post-test loop?	Nested for loop	For loop	While loop	Do-while loop	○	○	○	○
9.	Which of the following is **correct** syntax of string declaration?	`char book [30];`	`int book [30];`	`char book {30};`	`char book { };`	○	○	○	○
10.	`int arr[5]={9,10,12,19,98};` What will be stored at `arr[4];`	10	9	98	19	○	○	○	○
11.	The parameters used in function call are called:	Local parameters	Formal parameters	Global parameters	Actual parameters	○	○	○	○
12.	Which of the following functions is used to find if the control has reached the end of file or not?	`eof( )`	`bof( )`	`gets( )`	`puts( )`	○	○	○	○
13.	The ability to use an operator or function in multiple ways is called:	Virtual function	Inheritance	Polymorphism	Data hiding	○	○	○	○

COMPUTER SCIENCE HSSC–II

Time allowed: 2:40 Hours **Total Marks Sections B and C: 62**

SECTION – B (Marks 42)

Q. 2 Answer the following questions briefly. **14x3=42**

(i)	Write down one application for each of the following types of operating systems. **a.** Time-sharing **b.** Real time **c.** Embedded	03	OR	Write down any three differences between process and thread.	03
(ii)	How is protection system important in an operating system?	03	OR	Write down any three responsibilities of system analyst.	03
(iii)	Briefly describe any three types of deployment phase.	03	OR	Briefly describe the five states of process with diagram.	03
(iv)	Write down any three differences between if-else-if and switch statements.	03	OR	What is understood by functional and non-functional requirements in requirement gathering phase of SDLC?	03

(v)	What will be the output of following code segment?
	`int i=3;`
	`int j=i++;`
	`int k=++i;`
	`cout<<i<< " " <<j<< " " <<k;`
		03	OR	What will be the output of the following code segment?
				`for(int i=0; i<3;i++)`
				`{`
				`cout<< "Enter a character";`
				`cin>>ch;`
				`out.put(ch);`
				`}`
					03

(vi)	What will be the output of the following code?
	`int m=5, c=0;`
	`while(c<100)`
	`{`
	`m=m+1;`
	`c=c+1;`
	`}`
	`cout<<m;`
		03	OR	Write down the output of the following code segment.
				`{int a=7, b=12;`
				`fun(a,b);`
				`cout<<a<< " " <<b;`
				`}`
				`void fun(int m,int &n)`
				`{`
				`n=n-2*m;`
				`m=2*m;`
				`}`
					03

(vii)	`int arr[3][4]={{12,0,5,10},{7,8,19,30},{33,1,2,22}};` Write down a statement that replaces 19 with 50.	03	OR	Write a program that inputs a string and displays the number of character in it.	03
(viii)	Fill in the following table with Yes/No. Access of members in same class Access of members in derived class Access of members outside the class	03	OR	Consider the following array declaration: `int arr[8];` a. How many elements are there in the array? b. Determine the highest index of the array. c. Determine the lowest index of the array.	03
(ix)	What are strings? Briefly explain how to declare a string.	1+2	OR	Differentiate between local and static variables.	03
(x)	Compare binary files with text files in light of file handling in C++.	03	OR	Briefly describe any three modes of file opening in C++.	03
(xi)	What is the use of reference operator (&) in pointers?	03	OR	How is an array different from a simple variable? Explain with an example.	03
(xii)	Write down the syntax of using the `EOF` function in file handling.	03	OR	Briefly explain the concept of data hiding in classes using an example.	03
(xiii)	Write down any two advantages and one disadvantage of function overloading.	03	OR	Briefly explain the following terms related to array: **a.** Size of array **b.** Name of array **c.** Index	03
(xiv)	Explain the role of Project manager in SDLC.	03	OR	What is the use of break statement in C++?	03

Access	Public	Private
Access of members in same class		
Access of members in derived class		
Access of members outside the class		

SECTION – C (Marks 20)

Note: Attempt the following questions. **(5x4=20)**

Q.3	Write down a C++ program that finds the area and perimeter of a square.	05	OR	Why we use pointers? What is the difference between pointer variable declaration and initialization? Explain with example.	3+1 +1
Q.4	Write a C++ program that contains two integer data members which are initialized to 100 when an object is created. It has a member function `avg()` that displays the average of data members.	05	OR	Explain the difference between constant and variable with the help of programming examples.	3+2
Q.5	Explain the use of following in C++ by using examples. • Continue statement • Exit function	05	OR	Write down the importance of using functions in C++. Also explain the following components of function: • Function definition • Function call	2+2 +1
Q.6	Write a C++ program that inputs a positive integer and prints whether it is prime or composite.	05	OR	Explain the concept of function signature. Also write down any four advantages of using functions in C++.	1+4

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COMPUTER SCIENCE
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Answer Sheet No. _____

ہر سوال کے سامنے دیے گئے، کریکولم کے مطابق درست دائرہ کو پُر کریں۔ **Invigilator Sign.** _____

Fill the relevant bubble against each question according to curriculum: **Candidate Sign.** _____

	Question	A	B	C	D	A	B	C	D
1.	An object is a variable of type:	class	int	float	file	○	○	○	○
2.	Which of the following is a system software needed to load applications/programs into the memory and execute it?	Language processor	Device driver	Operating system	Utility program	○	○	○	○
3.	Monitoring the position of a rocket in the space is the application of _____ operating system.	Real-Time	Time-sharing	Batch processing	Multi-programming	○	○	○	○
4.	Which of the following symbols in flowchart represents decision making?					○	○	○	○
5.	Which of the following operators is arithmetic assignment operator?	||	+=	+=	!=	○	○	○	○

6.	What will be the value of x after executing the following expression?
	`int x,y=3;`
	`x=y++;`
	`cout<<x;`
		5	2	3	4	○	○	○	○

7.	The statement in C++ that transfers the control to the start of the loop body is:	Switch	Continue	Exit	Break	○	○	○	○

8.	What will be the output of the following expression?
	`int a=15, b=10;`
	`a>b? a+b: a-b;`
		10	05	15	25	○	○	○	○

9.	If int arr[2][3]={15,21,9,84,33,72}; what will be at arr[1][1];?	21	84	72	33	○	○	○	○
10.	Which of the following functions is used to append the string 2 to the end of string 1?	`strlen( )`	`strcat( )`	`strcpy( )`	`strcmp( )`	○	○	○	○
11.	The parameters used in the header of function definition are called:	Global parameters	Actual parameters	Formal parameters	Local parameters	○	○	○	○
12.	The correct syntax to write single character in file is:	obj.gets();	obj.put(ch);	obj.get(ch);	obj.gets(ch);	○	○	○	○
13.	Under which access specifier, the 'data members' and 'member functions' are accessible from outside the class?	Private	Public	Protected	Object	○	○	○	○

COMPUTER SCIENCE HSSC–II

Time allowed: 2:40 Hours **Total Marks Sections B and C: 62**

SECTION – B (Marks 42)

Q. 2 Answer the following questions briefly. **14x3=42**

(i)	Write down any three features of Multi-user Operating System.	03	OR	How is an argument pass by value different from an argument pass by reference?	03
(ii)	Describe any three objectives of SDLC.	03	OR	How is multi-threading different from multi-tasking? Give any three reasons.	03
(iii)	Briefly explain the three steps of requirement engineering phase of SDLC.	03	OR	Write down any three differences between post-tested and pre-tested loops with example.	03
(iv)	Write down the use of string stream in file handling.	03	OR	How is a project manager responsible for planning execution and closing of a project?	03

(v)	Rewrite the following for loop into do-while loop.
	`for(int n=0;n<10;n++)`
	`cout<<n<< " ";`
		03	OR	Briefly explain the concept of two-dimensional array with an example.	2+1

(vi)	Write down the purpose of `sizeof( )` function in array.	03	OR	Write down the output of the following code-segment.
				`int p,q,r;`
				`p=10; q=3;`
				`if(p%q==3)`
				`r=0;`
				`else`
				`r=1; cout<<r;`
					03

(vii)	Write a C++ code that prints sum of following. `int arr[10]={1,2,3,4,5,6,7,8,9,10};`	03	OR	Differentiate between `strlen( )` and `strcat( )` functions with an example.	2+1
(viii)	Briefly explain how a pointer variable is declared by using an example.	03	OR	Write down a piece of code in C++ that shows the use of inline function.	03
(ix)	Write a piece of code that shows how a string copies into another string using `strcpy( )` function.	03	OR	Given the array definition: `float a[5]={1,2,3};` a. How many elements are there in the array? b. What are the values of the first and last elements?	1+2
(x)	Differentiate local and global variables.	03	OR	Briefly explain the concept of data hiding in C++.	03

(xi)	Explain the difference between the following statements if P is a pointer variable:
	`cout<<P;`
	`cout<<*P;`
		03	OR	Write down the use of function overloading in terms of:
				• Number of arguments
				• Datatypes of arguments
				• Return types
					03

(xii)	How is constructor different from destructor?	03	OR	Write a C++ code that reads 03 characters from user and stores them in a file.	03
(xiii)	How is a binary file different from a text file in C++?	03	OR	Briefly explain the concept of polymorphism with daily life example.	2+1

(xiv)	Rewrite the following code by using the conditional operator:
	`if(a==b)`
	`cout<< "equal"; else`
	`cout<< "Not equal";`
		03	OR	Write down the output of the following code:
				`int i,j,k;`
				`for(i=0,j=2,k=1;i<=2;i++)`
				`cout<<i+j+k;`
					03

SECTION – C (Marks 20)

Note: Attempt the following questions. **(5x4=20)**

Q.3	Why is feasibility study important? Discuss any four types of it.	1+4	OR	Write down the use of type casting in C++. Briefly explain two types of casting with example.	2+2 +1
Q.4	Write down a C++ program by using class that input two values using a member function of a class named `input( )`, then display the sum of two values by using another member function named `show( )`.	2+2 +1	OR	What is the purpose of `setw` in C++? Also compare the use of `setw` and `endl` manipulators in C++.	2+2 +1
Q.5	Explain use of `exit( )` function in C++ with an example.	4+1	OR	Write a C++ program that prints all the positive odd numbers upto 30 skipping those that are divisible by 5 using continue statement.	05
Q.6	Explain the concept of function. Also explain the use of function definition and function call with the help of examples.	2+2 +1	OR	Name four functions of operating system and explain any two functions in detail.	2+2 +1