Version No.				
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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 اوّل لازمی ہے۔ اس کے جوابات اسی صفحہ پر دے کر ناظم 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 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.	Which of the following C++ access specifier allows members to be accessed only within the class itself?	Private	Global	Public	Protected	○	○	○	○
2.	To create a file for **writing only** in C++, which mode should be used?	ios::out	ios::binary	ios::in	ios::app	○	○	○	○
3.	Which operating system type is most suitable for traffic control systems where instant response is required?	Distributed OS	Multi-user OS	Batch Processing OS	Real-Time OS	○	○	○	○
4.	The **primary function** of an operating system is to:	Create application software	Convert high-level code to machine code	Manage computer resources	Design databases	○	○	○	○
5.	During development of a university admission system, the team first meets stakeholders to gather and validate user needs. This activity belongs to which SDLC phase?	Maintenance	Requirement Engineering	Design	Deployment	○	○	○	○
6.	Which operator is used in C++ for comparing two values?	++	==	=	%	○	○	○	○
7.	Which of the following correctly represents a multi-line comment in C++?	# comment #	/* comment here */	// comment here //	-- comment --	○	○	○	○

8.	What will be displayed by the following C++ code segment?
	`for(int i=1; i<=5; i++)`
	`{ if(i==3) break;`
	`cout << i; }`
		123	1234	12345	12	○	○	○	○

9.	In C++, the continue statement inside a loop is used to:	Pause the loop temporarily	Exit from the program	Terminate the loop immediately	Skip the current iteration and move to the next	○	○	○	○
10.	If an integer array has 10 elements, what is the index of the last element?	9	0	11	10	○	○	○	○

11.	What will be the output of the following C++ code?
	`char str[] = "CS";`
	`cout << strlen(str);`
		1	0	3	2	○	○	○	○

12.	`int sum(int a=5, int b=10) {`
	`return a+b; }`
	`cout << sum();`
	What will be the output of C++ code?
		5	0	15	10	○	○	○	○

13.	Which operator in C++ is used to get the address of a variable?	%	!	&	#	○	○	○	○

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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 parts briefly. **14x3=42**

(i)	Briefly explain **any three main functions** of an operating system.	03	OR	Write down the purpose of any three file opening modes in C++.	03
(ii)	Write a C++ program using a **for loop** to display odd numbers less than 50.	03	OR	Write a C++ program that declares an integer variable, stores its address in a pointer, and prints the value using the pointer.	03
(iii)	Differentiate between functional and non-functional requirements in SDLC with examples.	03	OR	Differentiate between a **constant** and a **variable** in **C++** with examples.	03
(iv)	What is the role of a **constructor** in C++? Explain with an example.	2+1	OR	Briefly describe the role of system analyst in SDLC.	03
(v)	Compare **BOF** and **EOF** in file handling with example.	03	OR	Differentiate between **single-user** and **multi-user operating systems** with examples.	03
(vi)	Compare pre-test and post-test loops with examples.	03	OR	Differentiate between **one-dimensional array** and **two-dimensional array** with examples.	03
(vii)	Write a C++ program that reads an alphabet and displays whether it is vowel or consonant using a switch statement.	03	OR	Write a C++ program that stores **5 integers in an array** and displays its size in memory.	03
(viii)	Differentiate between **public** and **private** access specifiers in C++ with an example.	03	OR	What is the difference between **prefix** and **postfix** increment operators in C++? Give one example of each.	03
(ix)	Write down the purpose of any two escape sequences in **C++** with examples.	03	OR	What is meant by **function overloading**? Give example.	1+2
(x)	What is the use of a **nested if** statement? Elaborate with example.	03	OR	Differentiate between **local** and **global variables** in C++ with examples.	03
(xi)	Differentiate between **multi-tasking** and **multi-programming** operating systems with examples.	03	OR	Compare **variable** and **pointer** in C++ with example.	03
(xii)	Compare **strcpy( )** and **strcat( )** with examples.	03	OR	How are **formal parameters** different from **actual parameters**? (Give three points)	03
(xiii)	What is the purpose of the **conditional operator**? Give example.	03	OR	What is **inline function**? Give example.	03
(xiv)	Briefly explain array size and subscript with example.	03	OR	Write down any three advantages of using function in a program.	03

SECTION – C (Marks 20)

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

Q.3	What is the importance of System Development Life Cycle? Describe the role of design and deployment phases in SDLC.	1+4	OR	What is file handling? Explain binary and text files with examples	1+4
Q.4	Explain the working of a **real-time operating system** with examples from industries such as aviation or healthcare.	2.5 + 2.5	OR	How do **inheritance** and **polymorphism** help us understand the common features and unique behaviors of things in our daily life? Give examples.	2.5 + 2.5
Q.5	Write a C++ program that inputs two numbers from the user and displays their sum, product, difference, quotient and remainder.	05	OR	Write a C++ program that stores marks of **five students in an array** and displays minimum and maximum marks.	05
Q.6	Write a C++ program to find whether a given number is prime or composite using a loop.	05	OR	Write a C++ program that defines a function named **factorial( )** which takes an integer as input and returns its factorial using function call in **main()**.	05