August/September 2022
BCA IV SEMESTER
Object Oriented Programming Using C++ (BCA-17-208)

Time: 3 Hours
Max. Marks:75

Instructions:
1. It is compulsory to answer all the questions (1.5 marks each) of Part -A in short.
2. Answer any four questions from Part -B in detail.
3. Different sub-parts of a question are to be attempted adjacent to each other.

		PART -A	
Q1	(a)	What is the major role of inheritance in C++?	(1.5)

	(b)	Name the manipulator that can be used to:
		  a) insert a newline and flush the output stream
		  b) Set fill character for output.
			(1.5)

	(c)	What is the difference between a declaration and a definition of a variable?	(1.5)

	(d)	Consider the statement :
		  #define MAX_NUM 15
		  what is MAX_NUM?
			(1.5)

	(e)	What is a copy constructor?	(1.5)
	(f)	What are the operators that cannot be overloaded?	(1.5)
	(g)	Differentiate between break and continue.	(1.5)
	(h)	State using example the difference in usage of a template class and an inherited class	(1.5)
	(i)	Justify the statement : **Inline function are better than macros**	(1.5)
	(j)	What is the function of following two stream mode flags: **Ios::ate** and **ios::nocreate**	(1.5)
		PART -B	
Q2	(a)	What is object-oriented programming? How is it different from procedure-oriented programming?	(7)
	(b)	What is a reference variable? What is its major use?	(4)
	(c)	Can we assign a void pointer to an int type pointer? If not, why? Which concept can be used to perform this assignment?	(4)
Q3	(a)	Specify the access rules for static class members.	(5)
	(b)	What are constructors and destructors? Discuss their various characteristics.	(5)
	(c)	Discuss the various operators for runtime memory management.	(5)
Q4	(a)	Design three classes Student, Exam and result. The exam class should be inherited from student, add data members representing marks scored in three subjects. Derive result class from exam class and display the total marks of each student.	(8)
	(b)	What is the difference between member functions defined inside and outside the class?	(3)
	(c)	Explain function overloading and function overriding. Give examples for each	(4)

Q5	(a)	The keyword 'virtual' can be used for functions / constructors as well as classes in C++. Explain the two different requirements with the help of example.	(6)
	(b)	Explain in detail the public and private modes of Inheritance	(9)
Q6	(a)	What is an exception handler? What are the steps involved in handling exceptions? What happens when a raised exception is not caught by the catch block?	(6)
	(b)	Explain the use of **std::unexpected( )** system function.	(3)
	(c)	Write a program to illustrate multiple catch statements. OR Write a program to add two matrices and throw an exception, in case the order of matrix is invalid.	(6)
Q7		Write short notes on:	(15)
	(a)	Pre-processor directives	
	(b)	Containership and composition	
	(c)	Parameterized classes	

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