Reg. No. | | | | | | | | |

G. VENKATASWAMY NAIDU COLLEGE (AUTONOMOUS), KOVILPATTI – 628 502.

UG DEGREE END SEMESTER EXAMINATIONS - APRIL 2025.

(For those admitted in June 2021 and later)

PROGRAMME AND BRANCH: B.Sc., INFORMATION TECHNOLOGY

SEM	CATEGORY	COMPONENT	COURSE CODE	COURSE TITLE
II	PART - III	CORE	U21IT202	PROGRAMMING WITH C++

Date & Session:23.04.2025/ FN **Time : 3 Hours** **Maximum 75 Marks**

Course Outcome	Bloom's K-level	Q. No.	SECTION – A (10 X 1 = 10 Marks) Answer ALL Questions.
CO1	K1	1.	Which keyword is used for dynamic memory allocation in C++? a) malloc b) new c) alloc d) create
CO1	K2	2.	The scope resolution operator (::) is used to: a) Define global variables b) Access members of a class outside its definition c) Terminate a program d) Declare friend functions
CO2	K1	3.	A friend function can access: a) Only public members of a class b) Private and protected members of a class c) Static members only d) Global variables only
CO2	K2	4.	The purpose of function overloading is to: a) Increase code redundancy b) Use the same function name for different operations c) Reduce code readability d) Limit polymorphism
CO3	K1	5.	A destructor is invoked when: a) An object is created b) A function returns c) An object goes out of scope d) A pointer is deleted
CO3	K2	6.	Operator overloading allows: a) Changing the precedence of operators b) Defining new operators c) Using operators with user-defined types d) Reducing code complexity
CO4	K1	7.	The this pointer refers to: a) The base class object b) The current object c) A static member d) A friend class
CO4	K2	8.	A pure virtual function is declared using: a) = 0 b) = default c) = delete d) = override
CO5	K1	9.	Which keyword defines a function template? a) template b) typename c) class d) virtual
CO5	K2	10.	The catch block in exception handling is used to: a) Throw exceptions b) Handle exceptions c) Terminate the program d) Declare try blocks

Course Outcome	Bloom's K-level	Q. No.	**SECTION – B (5 X 5 = 25 Marks)** **Answer ALL Questions choosing either (a) or (b)**
CO1	K3	11a.	Explain encapsulation and data abstraction in C++ with examples. **(OR)**
CO1	K3	11b.	Write a simple C++ program to demonstrate the use of classes and objects.
CO2	K3	12a.	Demonstrate inline functions with a code example. When are they beneficial? **(OR)**
CO2	K3	12b.	Explain static data members and static member functions with a code snippet.
CO3	K4	13a.	Write a C++ class with a parameterized constructor and copy constructor. **(OR)**
CO3	K4	13b.	Overload the << operator to display the contents of a class object.
CO4	K4	14a.	Explain runtime polymorphism using virtual functions with an example. **(OR)**
CO4	K4	14b.	Write a C++ program to read data from a file and display it using fstream.
CO5	K3	15a.	Create a function template to swap two values of any data type. **(OR)**
CO5	K3	15b.	Explain the exception handling mechanism in C++ with an example using try, catch, and throw.

Course Outcome	Bloom's K-level	Q. No.	**SECTION – C (5 X 8 = 40 Marks)** **Answer ALL Questions choosing either (a) or (b)**
CO1	K3	16a.	Analyze the benefits of encapsulation and data abstraction in OOP. Provide real-world examples. **(OR)**
CO1	K3	16b.	Evaluate the structure of a C++ program. How do tokens and control structures contribute to program flow?
CO2	K5	17a.	Design a C++ class with static data members and static member functions. Explain their significance. **(OR)**
CO2	K5	17b.	Critique the use of friend functions in C++. When are they necessary? Provide a code example.
CO3	K5	18a.	Evaluate the role of copy constructors in object initialization. How do they prevent shallow copying? **(OR)**
CO3	K5	18b.	Design a C++ class to overload the * operator for matrix multiplication. Discuss the challenges.
CO4	K6	19a.	Analyze the Delegation Event Model in C++. How does it handle GUI events? Provide a code snippet. **(OR)**
CO4	K6	19b.	Critique the use of virtual functions for runtime polymorphism. Compare it with compile-time polymorphism.
CO5	K5	20a.	Design a class template for a stack data structure. Implement push() and pop() operations. **(OR)**
CO5	K5	20b.	Evaluate the advantages of templates in C++. How do they promote code reusability?