



K. K. Wagh Institute of Engineering Education & Research, Nashik
(An Autonomous Institute From A.Y. 2022-23)

	SUMMER-2023		
	Exam Seat No.:		
	Academic Year:2022-2023	Semester II	
	Name of Programme: B.Tech	Pattern:2022	
	Name of Course: Programming in C++	Course Code:FYE221011	
	Max. Marks:60	Duration:2.30Hrs	

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains 03 page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question

Question No. 1 Attempt following Question

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|------|--|-----|-----|--|
| 1 a) | Explain inline function and its advantages. | (3) | CO1 | |
| 1 b) | Explain Friend Function with suitable example. | (3) | CO1 | |

Question No. 2 Attempt following Question

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|------|--|-----|-----|--|
| 2 a) | Explain multilevel inheritance in brief. | (3) | CO2 | |
|------|--|-----|-----|--|

How do the properties of the following derived classes differ, where B is base class and D1, D2, D3 are derived classes?

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|------|----------------------------------|-----|-----|--|
| 2 b) | i. class D1: private B {...} | (3) | CO2 | |
| | ii. class D2: public B {...} | | | |
| | iii. class D3: protected B {...} | | | |

Question No. 3 Attempt following Question

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|------|--|-----|-----|--|
| 3 a) | Compare run-time and compile-time polymorphism in C++. | (4) | CO3 | |
|------|--|-----|-----|--|

OR

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|------|---|-----|-----|--|
| 3 b) | Compare function overloading and operator overloading in C++. | (4) | CO3 | |
|------|---|-----|-----|--|

- 3 c) Develop a C++ program to implement a class called string, which represents the array of characters. Implement strings length comparison using operator overloading for <= operator. Print the string with greater length from two strings. (6) CO3

OR

- 3 d) Develop a C++ program to implement a class Complex which represents the Complex Numbers. Implement the following: (6) CO3
- i. Overload operator + (*plus*) to add two complex numbers.
 - ii. Overload operator - (*minus*) to subtract two complex numbers.

- 3 e) Explain void pointer and invalid pointer with suitable code in C++. (6) CO3

OR

- 3 f) Explain pointer in programming languages. Explain call-by-value and call-by-reference. (6) CO3

Question No. 4 Attempt following Question

- 4 a) Explain the sequence of constructor and destructor execution in exception handling for objects created inside try block with the help of suitable code in C++. (4) CO4

OR

- 4 b) Can class template have multiple arguments? Explain with suitable sample code in C++. (4) CO4

- 4 c) Develop a C++ program with two functions for adding and subtracting numbers with data types like integer, double, float. Use function template. (6) CO4

OR

- 4 d) Develop a C++ program to Create a class template to represent array of values. Implement the functions: Initialize array, Multiply values by a scalar value, Display array. (6) CO4

- 4 e) Develop a C++ program to Create a class of employees (data members - name, DOB). Write a function to accept the data and display the information. Use exception handling while accepting the data. e.g in DOB day value should be in between 1 to 31, month value should be in between 1 to 12. (6) CO4

OR

- 4 f) Develop a C++ program to Create a class for integers operations. Write functions to accept the numbers and do the arithmetic operations. Use exception handling for division operation. (6) CO4

Question No. 5 Attempt following Question

- 5 a) Explain file input and output streams with suitable diagram. (4) CO5

OR

- 5 b) Explain different file opening modes. (4) CO5

- 5 c) Develop a C++ program to create a file with person information with name and age. Read the file data and print the same. (6) CO5

OR

- 5 d) Develop C++ Program for writing to a file character by character and reading the same file character by character. (6) CO5
- 5 e) Explain error handling functions used during file operations with suitable code in C++. (6) CO5

OR

- 5 f) Explain the file pointer and its types. Explain seekp() and seekg() functions with suitable code in C++. (6) CO5