📄 C++ Pointer Exam - Paper 1: Basics & Definitions (100 Marks)

Q1. Definitions (5 × 5 = 25 Marks)

a) Pointer
 b) Null pointer
 c) Dangling pointer
 d) Void pointer
 e) Wild pointer

Q2. Program (15 Marks)

Write a C++ program to store the address of a variable using a pointer and print both the address and the value.

Q3. Pointer Arithmetic (20 Marks)

Explain with example: Pointer arithmetic (increment and decrement).

Q4. NULL vs nullptr (20 Marks)

What is the difference between NULL and nullptr? Give code examples for both.

Q5. Short Questions (4 marks each × 5 = 20 Marks)

- What does int* p = NULL; mean?
- Is int* p; initialized?
- Can pointer store 0?
- Difference between pointer and normal variable?
- How to safely initialize a pointer?

📄 C++ Pointer Exam - Paper 2: Arrays & Functions (100 Marks)

Q1. Array Creation & Pointer Use (20 Marks)

Write a program that creates an integer array using a pointer, fills it with values from 1 to 5, and prints all elements using pointer arithmetic.

Q2. Array and Pointer Relationship (20 Marks)

Explain the relationship between arrays and pointers in C++. Write code to show how *(arr + i) gives array elements.

Q3. Function Passing Array as Pointer (15 Marks)

Write a function that accepts an array through a pointer and prints all its elements.

Q4. Function Returning Static Array Address (20 Marks)

Write a function that returns the address of a static array (size 5), then print that array in main().

Q5. MCQs (5 marks each × 5 = 25 Marks)

a) What is the type of array name in C++?
 b) Can we change array name?
 c) Can pointer point to first element of array?
 d) How to pass array to function using pointer?
 e) Can we return array from function using pointer?

📄 C++ Pointer Exam - Paper 3: Functions Returning Pointers & Dynamic Allocation (100 Marks)

Q1. Function Returning Single Integer Pointer (20 Marks)

Write a function that dynamically allocates an integer, assigns it the value 50, returns its pointer, and write complete main() program to use it and delete memory safely.

Q2. Dynamic Array Allocation (25 Marks)

Write a function that dynamically creates an array of n integers (size entered by user), fills it with multiples of 10, returns pointer, and prints array in main().

Q3. 2D Dynamic Array Return (25 Marks)

Write a function that returns a 2D dynamic array (size 3×3), fills it with square numbers, and prints it in main(). Remember to delete the memory after use.

Q4. Stack vs Heap Memory (15 Marks)

Write 5 differences between stack memory and heap memory.

Q5. Memory Leak Concept (15 Marks)

What happens if you forget to delete dynamic memory?

📄 C++ Pointer Exam - Paper 4: Pointer Types & Error Handling (100 Marks)

Q1. Definitions (5 × 5 = 25 Marks)

Explain:
 a) Null Pointer
 b) Dangling Pointer
 c) Wild Pointer
 d) Void Pointer
 e) Constant Pointer

Q2. Null Check Before Access (15 Marks)

Write a program that checks if a pointer is null before accessing it.

Q3. Void Pointer Usage (20 Marks)

Write a program showing how a void pointer can point to different data types and access their values using typecasting.

Q4. Uninitialized Pointer Dereferencing (15 Marks)

Give code and explanation: What happens if you try to dereference an uninitialized pointer?

Q5. Constant Pointer vs Pointer to Constant (25 Marks)

Write a small program showing a constant pointer and a pointer to constant. Also explain the difference between both.

📄 C++ Pointer Exam - Paper 5: Full Concepts Integration (100 Marks)

Q1. Full Program Integration (40 Marks)

Write a full program that:

- Dynamically allocates an array
- Fills it with first 10 multiples of 7
- Passes the array to a function by pointer
- Prints the array inside the function

- Returns back the sum of all elements
- Deletes memory properly

Q2. Static 2D Array Return (20 Marks)

Write a function that creates a 2D static array, fills it with multiplication table of 3, returns its address, and prints in main.

Q3. Short Conceptual Questions (10 marks each × 4 = 40 Marks)

a) Explain pointer arithmetic with example on array.
 b) Difference between returning array and passing array to function.
 c) Can we use new and delete with arrays? How?
 d) Can a pointer store addresses of two variables at the same time? Explain with reason.