100 C++ Programming Questions

1. What is C++?

2. What are the features of C++?

3. Explain the basic structure of a C++ program.

4. What is the difference between C and C++?

5. What are the data types used in C++?

6. Explain reference variables in C++.

7. What is a pointer in C++?

8. How does dynamic memory allocation work in C++?

9. Explain function overloading in C++.

10. What is operator overloading?

11. Define constructors and destructors in C++.

12. What is the difference between structure and class in C++?

13. Explain the concept of encapsulation in C++.

14. What is inheritance in C++?

15. What are the different types of inheritance in C++?

16. Explain multiple inheritance in C++.

17. What is polymorphism?

18. How does virtual functions work in C++?

19. What is an abstract class in C++?

20. Define friend functions in C++.

21. What is the difference between deep copy and shallow copy?

22. Explain exception handling in C++.

23. What are templates in C++?

24. What is STL (Standard Template Library) in C++?

25. How does a vector work in C++?

26. What is a map in C++ STL?

27. Explain iterators in C++ STL.

28. What is a lambda function in C++?

29. How does a file handling work in C++?

30. What are manipulators in C++?

31. What is the use of 'this' pointer?

32. Explain the use of 'mutable' keyword in C++.

33. What is a namespace in C++?

34. How does type casting work in C++?

35. Explain the difference between 'new' and 'malloc'.

36. What is the difference between 'delete' and 'free'?

37. What are function pointers in C++?

38. Explain the difference between pass by value and pass by reference.

39. What is RAII (Resource Acquisition Is Initialization)?

40. What is a smart pointer in C++?

41. Explain unique_ptr in C++.

42. What is shared_ptr in C++?

43. How does weak_ptr work in C++?

44. What are move semantics in C++?

45. Explain rvalue references in C++.

46. What is a lambda capture in C++?

47. How does constexpr work in C++?

48. What is the difference between 'volatile' and 'const' in C++?

49. How does multi-threading work in C++?

50. What is the role of mutex in C++?

51. What is a condition variable in C++?

52. Explain the difference between fork() and thread in C++.

53. What is a race condition in C++ multi-threading?

54. How does the 'explicit' keyword work in C++?

55. Explain the role of 'static' in C++.

56. What is memory leak and how can you prevent it?

57. What is a virtual destructor in C++?

58. How does the 'override' keyword work?

59. What is the use of 'final' keyword in C++?

60. How does perfect forwarding work in C++?

61. What is SFINAE in C++?

62. How does the 'alignas' keyword work?

63. What is std::any in C++?

64. What is std::variant?

65. How does std::optional work?

66. What is memory fragmentation?

67. What is the use of 'inline' functions?

68. Explain preprocessor directives in C++.

69. What is a macro in C++?

70. What is the role of 'typedef' in C++?

71. Explain 'using' keyword in C++.

72. What is the difference between 'struct' and 'class'?

73. What is the function of 'friend' keyword?

74. How does 'nullptr' work in C++?

75. What is the difference between 'enum' and 'enum class'?

76. What is an inline namespace?

77. How does the 'export' keyword work?

78. Explain the term 'decltype' in C++.

79. What is an aggregate type in C++?

80. What is std::tuple and how is it used?

81. How does std::array differ from C-style arrays?

82. What is std::deque and how does it work?

83. How is std::list different from std::vector?

84. What are the advantages of unordered_map?

85. What is the role of priority_queue?

86. How does std::stack work?

87. What is std::bitset used for?

88. What is std::chrono?

89. How does std::thread work?

90. What is a function object (functor)?

91. How does std::bind work?

92. What are futures and promises in C++?

93. What is std::atomic?

94. What is a type-trait in C++?

95. How does std::conditional work?

96. What is std::enable_if used for?

97. What is std::is_same?

98. How does std::move work?

99. What is std::forward?

100. What is std::exchange and how is it used?