C++ Important Theory Answers (Complete Notes)

1. Differences between POP and OOP:

POP: function-based, less secure, low reusability.

OOP: object-based, secure, high reusability, supports inheritance and polymorphism.

2. Advantages of OOP:

Data security, reusability, modularity, easy maintenance, flexibility.

3. Steps to set up C++ environment:

Install compiler → Install IDE → Configure → Write & Run program.

4. Input/Output operations:

cin for input, cout for output.

5. Data types:

int, float, double, char, bool, string.

6. Implicit vs explicit type conversion:

Implicit = automatic.

Explicit = manual casting.

7. Operators:

Arithmetic, relational, logical, assignment, increment/decrement, bitwise, ternary.

8. Constants and literals:

Constants = fixed values (const).

Literals = actual values like 10, 3.14, 'A'.

9. Conditional statements:

if-else and switch.

10. Loops:

for (known iterations), while (unknown), do-while (runs once minimum).

11. break and continue:

break stops loop, continue skips iteration.

12. Nested control:

Loop inside loop.

13. Functions:

Declaration, definition, calling.

14. Scope:

Local vs global variables.

15. Recursion:

Function calling itself.

16. Function prototypes:

Tell compiler function exists before use.

17. Arrays:

1D and 2D arrays.

18. Strings:

Using string class or char array.

19. Array initialization:

1D {1,2,3}, 2D {{1,2},{3,4}}.

20. String operations:

length, append, substr, compare.

21. OOP concepts:

Encapsulation, abstraction, inheritance, polymorphism.

22. Classes and objects:

Class = blueprint, Object = instance.

23. Inheritance:

Deriving new class from existing one.

24. Encapsulation:

Data hiding using private members.