Chapter 2 – Programming Cycle (CIT-113)

Short Questions with Easy Answers

Q1. Define Programming Cycle.

👉 Programming Cycle = The **steps followed to make a program**.

Steps:

1. Define problem
2. Design solution
3. Code the program
4. Test & debug
5. Documentation
6. Implementation & maintenance

Example: If you want to make a program to calculate student marks → you first define problem → design solution → write code → test with different marks → then finalize it.

Q2. What is Flowchart?

👉 A **graphical representation** of steps in a program using symbols (like arrows, boxes).

- It shows the flow of logic step by step.

Example:

Start → Input A, B → Sum = A + B → Print Sum → End

Q3. What is Readability?

👉 Code is called **readable** if it is easy to understand by you and others.

- Example:

// Good readable code

totalMarks = english + math + science;

vs.

// Not readable

t = e+m+s;

Q4. What is Documentation?

👉 Documentation = Written notes that explain how the program or software works.

- Example: A **User Manual** that explains how to install and use an app.

Q5. What is meant by Testing & Debugging?

👉 **Testing** = Checking program with different inputs.

👉 **Debugging** = Fixing errors in the program.

Example:
If program gives wrong result, you check (testing) → then correct mistakes (debugging).

Q6. How many steps are there in Program Development Cycle?

👉 Six steps:

1. Analyze problem
2. Design solution
3. Code program
4. Test & debug
5. Documentation
6. Implementation & maintenance

Q7. Advantages of Flowchart (any 3).

1. Good communication of logic.
2. Helps in analyzing the problem easily.
3. Works as program documentation.

Q8. Disadvantages of Flowchart (any 3).

1. Becomes complex for big logic.
2. Any change needs re-drawing.
3. Difficult to reproduce (symbols can't be typed).

Q9. Define Magnetic Disk symbol in Flowchart.

👉 A database/storage symbol (cylinder shape) used to show data stored on disk.

Q10. Why we use the word "Cycle" in Programming Cycle?

👉 Because if program fails during testing, we **repeat the steps** (go back, fix, and run again).

✅ **Long Questions (Easy Style with Examples)**

Q1. What is Programming Cycle?

- Programming Cycle = Steps to develop a program.
- Includes: Analyze → Design → Code → Test & Debug → Document → Implement.
  👉 Example: Creating an ATM program requires following all these steps repeatedly until correct.

Q2. What is Algorithm?

👉 An **algorithm** is a step-by-step plan to solve a problem.

- Written in simple English (pseudocode).

Example: Find sum of two numbers:

1. Start
2. Input A, B

3. Sum = A + B
4. Print Sum
5. End

Q3. Explain Common Flowchart Symbols.

1. **Oval** → Start/End
2. **Rectangle** → Process (e.g., A = B + C)
3. **Diamond** → Decision (Yes/No)
4. **Parallelogram** → Input/Output
5. **Cylinder** → Database/Storage

👉 Example: “Enter number → If number > 0 → Print Positive → Else Print Negative”.

Q4. Importance of Readability & Documentation.

- **Readability**: Easy to understand, team members can maintain it.
- **Documentation**: Explains program to users/programmers, helps in future updates.

Example: A payroll system with clear code + manual will save time for new developers.

Q5. What is Debugging & Testing?

- **Testing**: Run the program with different inputs to check correctness.
- **Debugging**: Find and fix errors (bugs).

Example: If program calculates average marks wrong → testing will show wrong answer → debugging will fix formula.