



### **DSA ASSIGNMENT QUESTIONS FOR BCA IV : Software Engineering**

#### **Q1. Introduction to Software Engineering**

**Explain Software Engineering in detail.**

Your answer should include:

- Definition of Software Engineering
  - Need for Software Engineering
  - Characteristics of good software
  - Software crisis and how Software Engineering addresses it
  - Role and responsibilities of a Software Engineer
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#### **Q2. Software Engineering Activities**

**Describe the major activities involved in Software Engineering.**

Explain in detail:

- Software specification
  - Software design and implementation
  - Software validation
  - Software evolution
  - Importance of each activity with suitable examples
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### **Q3. Software Development Life Cycle (SDLC)**

**Explain the Software Development Life Cycle (SDLC) and its basic phases.**

Include:

- Meaning of SDLC
  - Phases:
    - Requirement Analysis
    - System Design
    - Implementation (Coding)
    - Testing
    - Deployment
    - Maintenance
  - Advantages of following SDLC
  - Simple SDLC diagram
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### **Q4. Software Process Models**

**Explain different Software Process Models with emphasis on Waterfall, Incremental, Spiral, and Agile models.**

Your answer should cover:

- Definition of a software process model
- Waterfall Model – working, advantages, disadvantages
- Incremental Model – features and benefits
- Spiral Model – risk analysis and iterations
- Agile Model – principles and characteristics
- Comparison and suitable application scenarios

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## **Q5. Requirements Engineering and Software Project Management**

**Explain the basics of Requirements Engineering and Software Project Management.**

Discuss:

- Definition and importance of Requirements Engineering
- Types of requirements (functional and non-functional)
- Requirement gathering techniques
- Challenges in requirements engineering
- Basics of Software Project Management
- Project planning, scheduling, and risk management
- Role of a Software Project Manager

**Note:** At least one diagram must be included in every question.

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