# ARYA COLLEGE OF ENGINEERING GUESS PAPER

## (B.Tech.IIYearIII Semester2025-26)

## 3CSE4-07: Software Engineering

## Unit 1

### Short Answers: 2 Marks each

Q1. Explain WINWIN spiral model?

Q. 2 advantages of spiral model.

Q. 3 validation and verifications?

Q.4 Explain SDLC phases?

Q.5 What is Software Engineering?

Q6. What is meant by functional requirements?

Q7. What do you mean by non-functional requirements? Q8. What is FRS?

Q9. What do you understand by RAD model? Q10. What is Verification and Validation?

### Descriptive Answers: (5 to 10 Marks)

Q1. Describe the major phases of the Software Development Life Cycle (SDLC). Q2. Explain V Model and differentiate between Verification and Validation.

Q3. Explain Spiral Model with its phases and enlist advantages and disadvantages. Q4. Describe the Iterative Waterfall and Incremental model with proper diagram. Q5. Describe Waterfall Model along with its phases.

Q6. Explain RAD Model and justify how it is helpful in Software Development.

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## Unit 2

## Short Answers: 2 Marks each

Q1. What is LOC (Lines of Code) estimation?

Q2. What is software project management?

Q3. Write any two advantages of FP

estimation. Q4. Define project scheduling.

Q. 5 Explain how COCOMO can be used for cost estimations?

Q. 6 explain project planning and phases?

Q. 7 Explain decomposition techniques?

Q. 8 Explain role of project manager?

Q. 9 Explain reusable software resources?

Q. 10 Explain risk analysis and risk assessment?

Descriptive Answers: (5 to 10 Marks)

Q. 1 What is risk? Explain risk analysis in software project management.

Q. 2 Explain software project management and Project Scheduling concept.

Q3. Suppose that a project was estimated to be 400 KLOC. Calculate effort and time for each of three modes of development.

Table given as:

| Mode | a | b | c | D |
|---|---|---|---|---|
| Organic | 2.4 | 1.05 | 2.5 | 0.38 |
| Semi Detached | 3.0 | 1.12 | 2.5 | 0.35 |
| Embedded | 3.6 | 1.20 | 2.5 | 0.32 |

Q4. Compute the function point productivity, documentation, cost per function for the following data:

Q5. Explain COCOMO Model and COCOMO software project types and COCOMO types.

Q6. Explain the Software Project Planning process in detail.

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## (B.Tech.IIYearIII Semester2025-26)

## 3CSE4-07: Software Engineering

## Unit 3

### Short Answers: 2 Marks each

Q. 1 Explain data dictionary

Q. 2 explain CFD with examples

Q. 3 Explain SRS format?

Q. 4 Use cases diagram in SRS

Q. 5 Characteristics of the SRS

Q. 6 Explain Finite state

machine Q7. What is a state in

FSM?

Q8. What is a control flow diagram?

Q9. What is a decision table and decision

tree? Q10. Define structured analysis.

### Descriptive Answers: (5 to 10 Marks)

Q. 1 What are elements of requirement analysis model? Explain in detail

Q. 2 Explain component and contains of SRS?

Q. 3 Explain requirement fundamental and characteristics of requirement of SRS ?

Q. 4 Explain DFD and Draw a data flow graph or DFD of the system L-0and L-1 of student admission in your university?

Q. 5 describe structured analysis model with diagram and explain CFG?

Q. 6 Draw entity relationship diagram that describe data objects, relationship and types of attributes?

Q.7 Explain Data Dictionary With its format and symbols?

## Unit 4

# ARYA COLLEGE OF

# ENGINEERING GUESS PAPER

## (B.Tech.IIYearIII Semester2025-26)

## 3CSE4-07: Software Engineering

### Short Answers: 2 Marks each

Q. 1 Explain modularity?

Q. 2 Explain information hiding an encapsulation?

Q. 3 Explain type of software design

Q. 4 Explain functional independence

Q. 5 Explain stamp coupling

Q. 6 Explain temporal cohesion

Q7. What is procedural and architectural

design? Q8. Define design documentation.

Q9. What is interface design?

Q10. What is structure chart?

### Descriptive Answers: (5 to 10 Marks)

Q. 1 What is the software design principles and concepts?

Q2 Describes effective modular design in brief

Q3. Explain cohesion and different types of cohesion with

examples. Q4. Explain coupling and different types of coupling with

examples. Q5. Describe the role and components of design

documentation.

Q6. Explain architectural design. Describe different types of software architectures.

Q.7 Write down difference between CLI and GUI? What are the steps of implementing GUI?

### Unit 5

### Short Answers: 2 Marks each

# ARYA COLLEGE OF

# ENGINEERING GUESS PAPER

## (B.Tech.IIYearIII Semester2025-26)

## 3CSE4-07: Software Engineering

Q. 1 Explain class diagram with definition

Q. 2 Explain state chart diagram

Q. 3 Explain sequential diagram in UML

Q. 4 Explain deployment diagram

Q. 5 Explain physical component diagram of UML

Q. 6 Explain use case diagram of UML

Q7. Define activity diagram.

Q8. What is a state machine

diagram? Q9. What is OO analysis?

Q10. What is Data Modeling?

## Descriptive Answers: (5 to 10 Marks)

Q1. Explain Object-Oriented Design (OOD) and its key principles.

Q. 2 difference between OOA and OOD?

Q3. What is UML? Explain the role of UML diagrams in OOD.

Q4. Explain Use Case Diagram and Class Diagram with proper

examples? Q5. Describe Activity Diagram and Sequence Diagram with

example.

Q6. Discuss the concept of classes and objects in OOD with suitable examples.

. Q7. Explain State Chart Diagram and Component Diagram.

Q. 8 what is the object oriented design methods? List them

Q. 9 explain the difference between structural and object oriented analysis.

Q. 10 write shorts notes on object relationship model.

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# SOFTWARE ENGINEERING GUESS PAPER

**Subject Name : Software Engineering**

**Subject Code : 3AID4-07**

**Branch : AI&DS**

**Year : II Year**

**Faculty Name: Abhishek Sharma**

**Arya College OF Engineering**

Department of Computer Science & Engineering

(Rajasthan Technical University, KOTA)

(2025-2026)

# SOFTWARE ENGINEERING GUESS PAPER ARYA COLLEGE ENGINEERING

| UNIT=1 | |
|---|---|
| **Short Question** | |
| 1. | Define software? Enlist the characteristics of good software? |
| 2. | What is SRS? |
| 3. | Define Functional Requirement. |
| 4. | Define Non-functional Requirement. |
| 5. | What is Formal Requirement Specification? |
| 6. | Write two advantages of SRS. |
| 7. | What is Verification? |
| 8. | What is Validation? |
| 9. | Name any two-software development life-cycle models? |
| 10 | Mention the three element of software engineering? |

| **Long Question** | |
|---|---|
| 1. | What is good software design explain design document with example? |
| 2. | Explain software development life cycle with appropriate diagram? |
| 3. | What is prototyping? Give the sequence of event needed in prototyping? |
| 4. | Explain spiral model of software development with the labelled diagram state advantage and disadvantages of spiral model? |

| | |
|---|---|
| 5. | Explain maintenance phase of SDLC? |
| 6. | Discuss merits and demerits of various model of software development? |
| 7. | Explain Waterfall Model with advantages & limitations? |
| 8. | Explain Incremental Model with suitable example? |
| 9. | Write detailed contents of a good SRS document? |
| 10. | Explain Verification & Validation with differences and examples? |
| 11. | Compare different SDLC models (Waterfall, Spiral, Iterative& Scrum) ? |
| 12. | Explain Prototype , RAD , Agile model ? |

| **UNIT=2** | |
|---|---|
| **SHORT QUESTIONS** | |
| 1. | What is software project management? |
| 2. | Define effort estimation? |
| 3. | What is LOC? |
| 4. | What are Function Points? |
| 5. | Convert 2000 LOC to KLOC? |
| 6. | What is risk in a software project? |
| 7. | Define risk exposure? |
| 8. | What is project scheduling? |
| 9. | What is a Gantt chart? |

| | |
|---|---|
| 10. | What is PERT? |
| 11. | Define COCOMO Estimation? |
| 12. | Give the difference between FP and LOC? |
| 13. | Identify requirement analysis task? |

## LONG QUESTIONS

| | |
|---|---|
| 1. | Explain the term of risk analysis enlist four major categories of risk analysis? |
| 2. | Differentiate between LOC and FP estimation? |
| 3. | Identify requirement analysis task? |
| 4. | Define COCOMO Estimation model in brief? |
| 5. | Explain Function Point Analysis (FPA) with steps. |
| 6. | Suppose that a project was estimated to be 400 KLOC calculate effort and time for each of three modes of development? |

| Mode | a | b | c | d |
|---|---|---|---|---|
| Organic | 2.4 | 1.05 | 2.5 | 0.38 |
| Semi Detached | 3.0 | 1.12 | 2.5 | 0.35 |
| Embedded | 3.6 | 1.20 | 2.5 | 0.32 |

| | |
|---|---|
| 7. | What is risk analysis? Explain risk identification & mitigation. |
| 8. | Explain software project scheduling with examples (Gantt/PERT). |
| 9. | Explain cost estimation in detail with factors affecting cost. |
| 10. | Write a note on project planning & tracking. |

11..Compute the function point productivity, cost per function, documentation for the following data?

| Measurement Parameter | Count | Weighing Factor |
|---|---|---|
| i) No. of External Input (EI) | 24 | 4 |
| ii) No. of External output(EO) | 46 | 4 |
| iii) No. of External Inquiries (EQ) | 8 | 6 |
| iv) No. of Internal files (ILF) | 4 | 10 |
| v) No. of External Interfaces (EIF) | 2 | 5 |

vi) Effort -36.9 PM

vii) Technical documents -265 pages

viii) User documents - 122 pages

ix) Cost = $ 7744/month

Various processing factors are: 4, 1, 0, 3, 3, 5, 4, 4, 3, 3, 2, 2, 4, 5.

| UNIT =3 | |
|---|---|
| **Short Question** | |
| 1. | What is requirement analysis? |
| 2. | Identify requirement analysis task? |
| 3. | What is a data dictionary? |
| 4. | What is software prototyping? |
| 5. | What is FSM (Finite State Machine)? |
| 6. | Define state and transition. |

| | |
|---|---|
| 7. | What is DFD? |
| 8. | Define context diagram. |
| 9. | What is process specification? |
| 10. | What is behavioural modelling? |

| LONG QUESTIONS | |
|---|---|
| 1. | Explain Requirement Analysis tasks in detail. |
| 2. | Explain analysis principles (clarity, modularity, partitioning). |
| 3. | What is software prototyping? Explain types with examples. |
| 4. | Explain Data Dictionary with suitable examples. |
| 5. | What do you mean by DFD Explain its types wtih proper diagram draw 0 level and 1 level of DFD for college registration system? |
| 6. | Explain structured analysis using Data Flow Diagrams. |
| 7. | What is control flow diagram? Explain with example. |
| 8. | Explain behavioural modelling with suitable diagrams. |
| 9. | Design finite state automation machine and explain the working of FSM? |
| 10 | Design FSM to Check weather the given decimal no. id divisible by 3 or not? |

| **UNIT=4** | |
|---|---|
| **SHORT QUESTIONS (10)** | |
| 1. | What is software design? |
| 2. | Define modularity? |
| 3. | What is cohesion? |

| | |
|---|---|
| 4. | What is coupling? |
| 5. | Define architectural design? |
| 6. | What is procedural design? |
| 7. | What is design documentation? |
| 8. | What is interface design? |
| 9. | Define modular design? |
| 10. | Write two characteristics of good design**?** |

| **LONG QUESTIONS (10)** | |
|---|---|
| 1. | Explain fundamentals of Good software design? |
| 2. | What is modular design? Explain cohesion & coupling? |
| 3. | Explain data architectural design with diagram? |
| 4. | Explain procedural design in detail? |
| 5. | Write short notes on: (a) Modularity (b) Abstraction (c) Refinement |
| 6. | Explain design documentation and its contents? |
| 7. | Explain top-down and bottom-up design? |
| 8. | Explain cohesion and different types of cohesion with examples? |
| 9. | Explain data design and data structures used in design and Explain interface design with examples? |
| 10. | Explain architectural design. Describe different types of software architectures. |
| 11. | Explain coupling and different types of coupling with examples. |

| UNIT=5 | |
|---|---|
| **Short Question** | |
| 1. | What is Object-Oriented Analysis (OOA)? |
| 2. | What is Object-Oriented Design (OOD)? |
| 3. | Define class Diagram. |
| 4. | What is a state machine diagram? |
| 5. | Define activity diagram. |
| 6. | Define actor in a use-case diagram. |
| 7. | What is Data Modeling? |
| 8. | Define aggregation. |
| 9. | What is modularization in OOD? |
| 10 | What is UML? |

## LONG QUESTIONS

| | |
|---|---|
| 1. | Explain OOA and its steps. |
| 2. | Explain OOD concepts: Abstraction, Encapsulation, Inheritance, Polymorphism. |
| 3. | Draw a class diagram for any real-world system (Bank/Shopping). |

| | |
|---|---|
| 4. | Explain object & class relationships with examples (ISA, HASA). |
| 5. | Explain object modelling with examples. |
| 6. | Explain modularization in object-oriented design. |
| 7. | Explain UML introduction and types of diagrams. |
| 8. | Explain use-case modelling with suitable example. |
| 9. | Explain class diagram in detail. |
| 10. | Explain object interaction diagrams (sequence/collaboration). |
| 11. | Explain State Machine Diagram and Component Diagram. |
| 12. | Describe Activity Diagram and Sequence Diagram with example. |