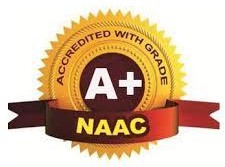
**NARAYANA ENGINEERING COLLEGE::NELLORE || GUDUR**

***Department of CSE***

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| **Course Details** |
| **Class:** B. Tech **Year-Semester: II-II Year:** 2024-25  **Course Title:** SOFTWARE ENGINEERING  **Course Code: 23A05403 Credits:** 3  **Program/Dept.:** Computer Science and Engineering **Section:** CSE-A B & C **Batch:** 2023-27  **Regulation:** NECR-2 **Faculty:**  Dr. Penchalaiah / Dr . V Sucharitha |

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| Q.NO | Model Question bank | CO | BL | Marks |
|  | MODULE-1 |  |  |  |
|  | Compare the exploratory style of software development with the more structured approaches adopted in software engineering. | 1 | 4 | 10 |
|  | Explain Software development life cycle (SDLC) model | 1 | 2 | 10 |
|  | Describe the agile development model and the core principles & practices of agile development? | 1 | 2 | 10 |
|  | Demonstrate rapid application development (RAD) model with advantages and disadvantages. | 1 | 2 | 10 |
|  | Explain the following:  a) Water fall model b) Incremental model | 1 | 2 | 10 |
|  | Illustrate about spiral model? | 1 | 3 | 10 |
|  | Explain the Following:   1. Why is the classical waterfall model calling an idealistic development model? Does this model of development has any practical use at all? | 1 | 4 | 05 |
| 1. What are the objectives of the feasibility study phase of software development? | 1 | 4 | 05 |
|  | Explain the Following:  (a). Prototyping Model (b). Agile Development Models | 1 | 2 | 10 |
|  | Explain the Following:  (a). Agile versus Other Models  (b) Selecting an Appropriate Life Cycle Model for a Project | 1 | 2 | 10 |
|  | Consider software development by a project team:  (a) Mention the major activities that are undertaken during the development of a software. | 1 | 3 | 7 |
| (b) Name an activity that spans all the development phases | 1 | 2 | 3 |
|  | Which life cycle model would you follow for developing software for each of the following applications? Mention the reasons behind your choice of a particular life cycle model.  (a) A well-understood data processing application.  (b) A new text editor.  (c) A compiler for a new language.  (d) An object-oriented software development effort.  (e) The graphical user interface part of a large software | 1 | 3 | 10 |
|  | “Suppose a travel agency needs a software for automating its book-keeping activities. The set of activities to be automated are rather simple and are at present being carried out manually. The travel agency has indicated that it is unsure about the type of user interface which would be suitable for its employees and its customers”.  Would it be proper for a development team to use the “Spiral Model “for developing this software? | 1 | 3 | 10 |

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|  | **MODULE-II** |  |  |  |
|  | **Discuss the key challenges and complexities involved in managing Software projects.** | 2 | 2 | 10 |
|  | **What are the primary responsibilities of a software project manager? How can a project manager balance the competing demands of time, cost, and quality?** | 2 | 3 | 10 |
|  | **Explain the concept of risk management in software projects.** | 2 | 2 | 10 |
|  | **Explain the key steps involved in the requirements gathering and analysis process?** | 2 | 3 | 10 |
|  | **Discuss the various techniques used to elicit and validate requirements.** | 2 | 2 | 10 |
|  | **Demonstrate the essential qualities of a good Software Requirements Specification (SRS)?** | 2 | 3 | 10 |
|  | **Explain How can an SRS be effectively used to communicate requirements to development teams?** | 2 | 2 | 10 |
|  | Demonstrate various Project estimation techniques | 2 | 2 | 10 |
|  | **Discuss the advantages and limitations of using formal methods in software development.** | 2 | 2 | 10 |
|  | Narrate COCOMO Heuristic Estimation Technique | 2 | 3 | 10 |
|  | Differentiate axiomatic specification from formal specification techniques | 2 | 4 | 10 |
|  | Explain Halstead’s Analytical Technique |  | 2 |  |
|  | **MODULE-III** |  |  |  |
|  | **Explain How can software design be effectively evaluated?** | 3 | 2 | 10 |
|  | **Explain the key principles and practices of Extreme Programming (XP).** | 3 | 2 | 10 |
|  | Illustrate about  a) component level design elements  b) Interface design elements | 3 | 3 | 10 |
|  | **Explain the structured analysis and design (SA/SD) methodology.** | 3 | 2 | 10 |
|  | **Discuss the concept of data flow diagrams (DFDs). How can DFDs be used to visualize the flow of data through a software system?** | 3 | 2 | 10 |
|  | Comparison between cohesion and coupling designs? | 3 | 4 | 10 |
|  | **Explain various key tools and techniques used in agile software development?** | 3 | 2 | 10 |
|  | **Explain Scrum model along with the advantages and disadvantages.** | 3 | 2 | 10 |
|  | Demonstrate component-based GUI Development? | 3 | 2 | 10 |
|  | Explain briefly about the Design concepts involved in software design? | 3 | 2 | 10 |
|  | Explain briefly about the User interface design methodology? | 3 | 2 | 10 |
|  | Illustrate about the types of user interfaces | 3 | 3 | 10 |
|  | **MODULE-IV** |  |  |  |
|  | Explain the significance of code reviews in software development? | 4 | 2 | 10 |
|  | Discuss about software documentation | 4 | 2 | 10 |
|  | Demonstrate the role of debugging in software development? | 4 | 2 | 10 |
|  | How can program analysis tools be used to improve software quality and reliability? Discuss the limitations and challenges of using these tools. | 4 | 2 | 10 |
|  | What is software reliability? Explain the key factors that affect software reliability and discuss the techniques for measuring and improving it. | 4 | 2 | 10 |
|  | Explain the Following:  (a). Smoke testing (b). Software quality | 4 | 2 | 10 |
|  | Explain black box testing in detail? | 4 | 2 | 10 |
|  | Demonstrate white box testing in detail? | 4 | 2 | 10 |
|  | Explain the Capability Maturity Model Integration (CMMI) and its different levels. | 4 | 2 | 10 |
|  | What is Six Sigma? How can it be applied to software development to improve quality and reduce defects? | 4 | 3 | 10 |
|  | Explain the Following:  (a). Integration testing in detail? (b). ISO 9000 | 4 | 2 | 10 |

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|  | **MODULE-V** |  |  |  |
|  | Discuss the key components of a CASE environment and explain how they interact to support the software development process. | 5 | 2 | 10 |
|  | Critically analyze the role of CASE tools in improving software quality and productivity. How can organizations effectively implement CASE tools to achieve maximum benefits? | 5 | 2 | 10 |
|  | What is software reverse engineering? How can it be used to improve software maintenance? | 5 | 2 | 10 |
|  | Explain the characteristics of software maintenance | 5 | 2 | 10 |
|  | Describe the various software maintenance process models. | 5 | 2 | 10 |
|  | Narrate How can software metrics be used to estimate maintenance costs? | 5 | 3 | 10 |
|  | Evaluate the impact of software reuse on software development costs, quality, and time-to-market.. | 5 | 5 | 10 |
|  | What are the key factors that hinder software reuse? How can organizations overcome these challenges and establish a successful software reuse approach? | 5 | 3 | 10 |
|  | Explain the reason behind no reuse so far. | 5 | 2 | 10 |
|  | Demonstrate basic issues in any reuse program. | 5 | 3 | 10 |