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| **P. V. P. SIDDHARTHA INSTITUTE OF TECHNOLOGY** | |
| **BRANCH: CSE/IT** | **REGULATION: PVP23** |
| **COURSE: B. TECH** | **SUBJECT: Software Engineering** |
| **SUBJECT CODE:**   |  | | --- | | **23CS3403** | | **23IT3403** | | **YEAR AND SEMESTER: II B.TECH SEMESTER II** |
| **QUESTION BANK** | |

**UNIT – I**

**PART - A**

**Short Answer Questions (2 Marks Each)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **QUESTION** | **CO** | **LEVEL** | **MARKS** |
| **1** | What is Software Engineering? | CO1 | L2 | 2 |
| **2** | List out the types of Software projects? | CO1 | L2 | 2 |
| **3** | Is Software Engineering is a Science or art? | CO1 | L2 | 2 |
| **4** | Illustrate Decomposition? | CO1 | L2 | 2 |
| **5** | Explain the Data Flow-Oriented Design? | CO1 | L2 | 2 |
| **6** | Compare Process versus Methodology? | CO1 | L2 | 2 |
| **7** | Define Scrum? | CO1 | L2 | 2 |
| **8** | Summarize the advantages and Disadvantages of Agile methods? | CO1 | L2 | 2 |
| **9** | Relate the Differences between V-model versus Waterfall model? | CO1 | L2 | 2 |
| **10** | Compare Spiral model as a meta model? | CO1 | L2 | 2 |

**PART- B**

**Long Answer Questions (10 Marks Each)**

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| **S.No.** | **Question** | **CO** | **Bloom’s Level** | **Marks** |
| 1 | Explain about Evolution-From an art form to Engineering discipline. | CO1 | L2 | 10 |
| 2 | Describe about RAD process model and its applicability | CO1 | L2 | 10 |
| 3 | Identify the symptoms and possible solutions for software crisis. | CO1 | L2 | 10 |
| 4 | Illustrate the incremental development model for software development with a clear diagram. | CO1 | L2 | 10 |
| 5 | When you know programming, Explain the need to learn software engineering concepts. | CO1 | L2 | 10 |
| 6 | Explain waterfall model and its extension. | CO1 | L2 | 10 |
| 7 | Explain Agile development model | CO1 | L2 | 10 |
| 8 | Explain the various Phases of V Model in detail? | CO1 | L2 | 10 |
| 9 | Explain spiral model software life cycle activities in each phase | CO1 | L2 | 10 |
| 10 | Illustrate Notable changes in software development practices. | CO1 | L2 | 10 |

**UNIT – II**

**PART - A**

**Short Answer Questions (2 Marks Each)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **QUESTION** | **CO** | **LEVEL** | **MARKS** |
| **1** | Define Function point Metric? | CO1 | L2 | **2** |
| **2** | What is Person-month? | CO1 | L2 | **2** |
| **3** | Explain the Job Responsibilities for Managing Software Projects? | CO1 | L2 | **2** |
| **4** | Classify the different categories of software development projects according to the COCOMO estimation model? | CO1 | L2 | **2** |
| **5** | List out the Project Estimation Techniques? | CO1 | L2 | **2** |
| **6** | Differentiate between Functional and Non-Functional requirements of a system? | CO1 | L2 | **2** |
| **7** | List out the characteristics of a good SRS Document? | CO1 | L2 | **2** |
| **8** | How is the SRS document validated? | CO1 | L2 | **2** |
| **9** | Compare Reactive and Proactive approaches? | CO1 | L2 | **2** |
| **10** | What is the objective of risk assessment? | CO1 | L2 | **2** |

**PART- B**

**Long Answer Questions (10 Marks Each)**

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| **S.No.** | **Question** | **CO** | **Bloom’s Level** | **Marks** |
| 1 | What is meant by the ‘size’ of a software project? Apply it to estimate the size of the project? | CO2 | L3 | 10 |
| 2 | Illustrate the process of task analysis in the requirement-gathering phase for the 'Issue Book Service' | CO2 | L3 | 10 |
| 3 | Apply the basic COCOMO model with example. | CO2 | L3 | 10 |
| 4 | Write the functional requirements for organizing the SRS document for an ATM application.. | CO2 | L3 | 10 |
| 5 | Apply the Function Point (FP) calculation procedure with example. | CO2 | L3 | 10 |
| 6 | Apply the Requirement Engineering Tasks with real world scenario? | CO2 | L3 | 10 |
| 7 | Apply the responsibilities of the Project manager for successful projects delivery. | CO2 | L3 | 10 |
| 8 | Apply the Software Requirement Specification with real world example. | CO2 | L3 | 10 |
| 9 | Apply the mechanism in identification of Attributes of SRS Documents | CO2 | L3 | 10 |
| 10 | Apply the mechanism in the Organisation of the SRS Document. with Example. | CO2 | L3 | 10 |

**UNIT III**

**PART A**

**Short Answer Questions (2 Marks Each)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. NO.** | **QUESTIONS** | **CO** | **Bloom’s Level** | **MARKS** |
| 1 | How to characterise a Good Software Design? | CO1 | L2 | 2 |
| 2 | Define Cohesion and Coupling? | CO1 | L2 | 2 |
| 3 | What is Fan-in and Fan-out of layered arrangement of modules? | CO1 | L2 | 2 |
| 4 | Define Data Flow Diagram? | CO1 | L2 | 2 |
| 5 | Explain three types of Transform analysis? | CO1 | L2 | 2 |
| 6 | Compare Mode-based versus Modeless Interface? | CO1 | L2 | 2 |
| 7 | List out the characteristics of a good user Interface? | CO1 | L2 | 2 |
| 8 | Compare Graphical user interface and Text –based user interface? | CO1 | L2 | 2 |
| 9 | Explain Transaction Analysis? | CO1 | L2 | 2 |
| 10 | What is User Interface and list out the principles of Golden rules for effective user interfaces? | CO1 | L2 | 2 |

**PART- B**

**Long Answer Questions (10 Marks Each)**

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|  | | | | |
| S.No. | Question | CO | BTL | Marks |
| 1 | Apply different types of cohesion that a module in a design might exhibit. Give examples of each. | CO3 | L3 | 10 |
| 2 | Apply the concept of Approaches to software design- Function oriented design system with example. | CO3 | L3 | 10 |
| 3 | Construct a Level 1 DFD for software that calculates the Root Mean Square (RMS) of three integer inputs (range: -1000 to +1000) and displays the result. | CO3 | L3 | 10 |
| 4 | Apply decomposition and abstraction in software design. How do these principles help in achieving good procedural designs? | CO3 | L3 | 10 |
| 5 | Apply different types of Layered Arrangement of Module. Give examples of each. | CO3 | L3 | 10 |
| 6 | Apply the real time Role and Characteristics of good user Interface design. | CO3 | L2 | 10 |
| 7 | Apply the procedure in How to Characterise a Good Software Design | CO3 | L3 | 10 |
| 8 | Apply the Types of User Interfaces and its levels. | CO3 | L2 | 10 |
| 9 | Analyse the detailed design in detail with examples. | CO3 | L3 | 10 |
| 10 | apply the Golden Rules in detail with examples for the justification of reality. | CO3 | L3 | 10 |

**UNIT IV**

**PART A**

**Short Answer Questions (2 Marks Each)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. NO.** | **QUESTIONS** | **CO** | **Bloom’s Level** | **MARKS** |
| 1 | What is the main objective of the Coding Phase? | CO1 | L2 | 2 |
| 2 | Difference between Verification and Validation? | CO1 | L2 | 2 |
| 3 | What is Equivalence Class Partitioning? | CO1 | L2 | 2 |
| 4 | Define Control Flow Graph? | CO1 | L2 | 2 |
| 5 | What is Backtracking? | CO1 | L2 | 2 |
| 6 | Compare Product Metrics versus Process Metrics? | CO1 | L2 | 2 |
| 7 | Define the terms Software Reliability and Software Quality? | CO1 | L2 | 2 |
| 8 | What is CMMI? | CO1 | L2 | 2 |
| 9 | How to Get ISO 9000 Certification? | CO1 | L2 | 2 |
| 10 | Define Total Quality Management? | CO1 | L2 | 2 |

**PART- B**

**Long Answer Questions (10 Marks Each)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | | | |
| S.No. | Question | CO | BTL | Marks |
| 1 | Apply White box testing and Black box testing techniques with examples. | CO3 | L3 | 10 |
| 2 | Identify the notable differences between Verification and Validation in software testing? | CO3 | L3 | 10 |
| 3 | Apply how statistical testing is useful in software quality management. | CO3 | L3 | 10 |
| 4 | For the equation y= mx+c, design the black box test suite which reads two input pairs(m1,c1) and (m2,c2) | CO3 | L3 | 10 |
| 5 | Apply the Internal and External documentation in detail with proper elaboration for real world example. | CO3 | L3 | 10 |
| 6 | Apply the procedure in the Software Quality Management System with examples. | CO3 | L3 | 10 |
| 7 | Apply the concept SEI CMMI in real world scenario.. | CO3 | L3 | 10 |
| 8 | Compare the concept of ISO 9000 certification and SEI/CMM. with proper elaboration | CO3 | L3 | 10 |
| 9 | Apply Reliability Metrics of Software Products standards conventional software. | CO3 | L3 | 10 |
| 10 | Apply the concept of Steps in Statistical Testing with example. | CO3 | L3 | 10 |

**UNIT V**

**PARTA**

**Short Answer Questions (2 Marks Each)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. NO.** | **QUESTIONS** | **CO** | **Bloom’s Level** | **MARKS** |
| 1 | Explain the Benefits of computer aided software Engineering? | CO1 | L2 | 2 |
| 2 | List out the characteristics of CASE Tools? | CO1 | L2 | 2 |
| 3 | What is Software Reverse Engineering? | CO1 | L2 | 2 |
| 4 | Explain the types of Software Maintenance? | CO1 | L2 | 2 |
| 5 | What is the formula for Estimating Maintenance costs as a part of COCOMO Cost Estimation model? | CO1 | L2 | 2 |
| 6 | What is Code Generation? | CO1 | L2 | 2 |
| 7 | Define User Interface? | CO1 | L2 | 2 |
| 8 | List out and explain prototyping CASE tool’s requirements? | CO1 | L2 | 2 |
| 9 | Explain Test CASE Generator? | CO1 | L2 | 2 |
| 10 | What is Software Maintenance? | CO1 | L2 | 2 |

**PART- B**

**Long Answer Questions (10 Marks Each)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | | | |
| S.No. | Question | CO | BTL | Marks |
| 1 | Apply and Analyse Case Environment- Benefits of CASE? | CO4 | L3 | 10 |
| 2 | Apply the process of CASE Support in Software Life Cycle in real world scenario | CO4 | L3 | 10 |
| 3 | Apply and Identify Various Risk Components and Drivers in Risk management strategies. | CO4 | L3 | 10 |
| 4 | Apply and Identify the Characteristics of the Software maintenance? | CO4 | L3 | 10 |
| 5 | How we Apply the Architecture of CASE environment in real world scenario | CO4 | L3 | 10 |
| 6 | How we Apply and classify the Characteristics and benefits of Case Tools? | CO4 | L2 | 10 |
| 7 | How we Apply and classify the concept of software maintenance process models. | CO4 | L2 | 10 |
| 8 | Apply the concept of software reverse engineering with example. | CO4 | L2 | 10 |
| 9 | Apply the procedure of Estimation of maintenance cost with examples. | CO4 | L3 | 10 |
| 10 | Apply and analyse the various Special Problems Associated with Software Maintenance? | CO4 | L3 | 10 |

**Course Coordinators Module Coordinators**

1. Dr A .Haritha
2. Dr D. Kavitha Dr. K Koteswara Rao, Dr A Haritha
3. Dr K Koteswara Rao

4. Dr. A Ramana Lakshmi

5. Ms A Divya

**Prof. & Head, Dept. of IT Prof. & Head, Dept. of CSE**

**(Dr. B V. Subbarao).**  **(Dr. A. JayaLakshmi)**