

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2024
 Third Semester
Information Technology
20ITPC302 - SOFTWARE ENGINEERING
 Regulations - 2020

Duration: 3 Hours

Max. Marks: 100

PART - A (MCQ) (20 × 1 = 20 Marks)

Answer ALL Questions

	<i>Marks</i>	<i>K- Level</i>	<i>CO</i>
1. In Agile development, what is a "sprint"? (a) A long-term phase in the project lifecycle (b) A set period during which specific work has to be completed and made ready for review (c) An external review of the project progress (d) A type of risk management strategy	1	K1	CO1
2. Which of the following is NOT one of the key practices of Extreme Programming (XP)? (a) Continuous Integration (b) Test-Driven Development (c) Big Upfront Design (d) Pair Programming	1	K1	CO1
3. In the Waterfall model, which phase follows the Design phase? (a) Testing (b) Implementation (c) Requirements (d) Maintenance	1	K1	CO1
4. Which of the following is typically included in a Data Dictionary? (a) Database schema and relationships (b) User interface design and layout (c) Project timeline and milestones (d) Testing procedures and results	1	K1	CO2
5. Which type of requirement specifies how the system should perform under certain conditions? (a) Functional Requirement (b) Non-Functional Requirement (c) System Requirement (d) User Requirement	1	K1	CO2
6. Which of the following methods is most commonly used to gather user requirements? (a) Code reviews (b) Prototyping (c) Performance benchmarking (d) System integration testing	1	K1	CO2
7. Which of the following is NOT a design concept? (a) Abstraction (b) Encapsulation (c) Coupling (d) Debugging	1	K1	CO3
8. Which design heuristic suggests minimizing the interaction between modules? (a) High Cohesion (b) Low Coupling (c) Abstraction (d) Modularity	1	K1	CO3
9. Which architectural style is best suited for building distributed systems with loosely coupled components? (a) Client-Server Architecture (b) Monolithic Architecture (c) Microservices Architecture (d) Layered Architecture	1	K1	CO3
10. A -----refers to a system that is being validated by the testers. (a) System Under Test (SUT) (b) Requirements testing (c) Unit test (d) Quality check	1	K1	CO4
11. System Testing (ST) is a ----- testing technique. (a) White box (b) Grey box (c) Black box (d) Glass box	1	K1	CO4
12. What is the primary document used for testing functionality in system testing? (a) User manuals (b) Code documentation (c) Software design specifications (d) Software Requirement Specification (SRS)	1	K1	CO4
13. Attributes of Effective Software Metrics (a) Simple and computable (b) Empirically and intuitively persuasive (c) Consistent and objective (d) All of the mentioned	1	K1	CO5

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| 14. Which of the following are advantages of using function points (FP) as a measure of the functionality delivered by a software application?
(a) FP is easily computed
(b) FP is a language dependent measure.
(c) FP is a language independent measure
(d) FP can be computed before a design is completed
(e) Both c and d | 1 | K1 | CO5 |
| 15. COCOMO II is an example of a suite of modern empirical estimation models that require sizing information expressed as:
(a) function points (b) lines of code (c) object points (d) any of the above | 1 | K1 | CO5 |
| 16. Which of the following items are not measured by software project metrics?
(a) inputs (b) markets (c) outputs (d) results | 1 | K1 | CO5 |
| 17. Which of the following risk is the failure of a purchased Component to perform as expected?
(a) Product risk (b) Project risk (c) Business risk (d) Programming risk | 1 | K1 | CO6 |
| 18. What all has to be identified as per risk identification?
(a) Threats (b) Vulnerabilities (c) Consequences (d) All of the mentioned | 1 | K1 | CO6 |
| 19. Risk management is one of the most important jobs for a
(a) Client (b) Investor (c) Production team (d) Project manager | 1 | K1 | CO6 |
| 20. Which of the following is not a Software Risk Component_____
(a) Schedule Risk (b) Cost Risk (c) Strategic Risk (d) Support Risk | 1 | K1 | CO6 |

PART - B (10 × 2 = 20 Marks)

Answer ALL Questions

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| 21. Why is it called “Extreme” in Extreme Programming? | 2 | K2 | CO1 |
| 22. What are data dictionaries? | 2 | K1 | CO1 |
| 23. Draw the Context level DFD for the Safe home Software. | 2 | K1 | CO2 |
| 24. Write down the Data dictionary for the data item “Telephone Number”. | 2 | K2 | CO2 |
| 25. What is the design quality attributes ‘FURPS’ meant? | 2 | K1 | CO3 |
| 26. Differentiate between fan-in and fan-out. | 2 | K2 | CO3 |
| 27. What is configuration management planning? | 2 | K1 | CO4 |
| 28. List some techniques used in white box testing. | 2 | K1 | CO4 |
| 29. What are the different types of productivity estimates? | 2 | K1 | CO5 |
| 30. What are the different types of risk? | 2 | K1 | CO6 |

PART - C (6 × 10 = 60 Marks)

Answer ALL Questions

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| 31. a) i) For Word Processing software, Choose the suitable model for developing it. Explain the model in detail. | 05 | K2 | CO1 |
| ii) Explain about Component based Development model in detail. | 05 | K2 | CO1 |

OR

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|---|----|----|-----|
| b) Explain in detail about spiral model with a neat sketch and comment why this model comes under both evolutionary and RAD models. | 10 | K2 | CO1 |
| 32. a) Prepare Software Requirement specification for Automatic Attendance system (Face and Fingerprint Recognition). | 10 | K2 | CO2 |
| OR | | | |
| b)(i) Illustrate how Software requirements are documented. State the importance of documentation. | 5 | K2 | CO2 |
| (ii) Discuss in detail about the steps involved in initiating requirements engineering. | 5 | K2 | CO2 |

33. a) Describe User interface design with interface analysis for Safe home security application. 10 K3 CO3
- OR**
- b) Giving reasons for your answer, suggest an appropriate structural model for the following systems: 10 K3 CO3
- (i) An automated ticket-issuing system used by passengers at a railway station.
- (ii) A computer-controlled video conferencing system that allows video, audio and computer data to be visible to several participants at the same time.
34. a) What is black box & white-box testing? Explain how basis path testing helps to derive test cases to test every statement of a program. 10 K2 CO4
- OR**
- b) What is refactoring? When is it needed? Explain with example. 10 K2 CO4
35. a) Explain the steps involved in problem based estimation (LOC and FP). 10 K2 CO5
- OR**
- b) What is project scheduling? Explain in brief about the basic principles guiding the software project scheduling. 10 K2 CO5
36. a) Discuss in detail about RIS Sheet preparation for any two risk associated with Automated Airline controller software. 10 K2 CO6
- OR**
- b) What is the risk? List out the characteristics of risk? Explain in detail about the different categories of risk. 10 K2 CO6