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B.Tech/ M.Tech (Integrated) DEGREE EXAMINATION, MAY 2024
Sixth Semester

21CSC303J – SOFTWARE ENGINEERING AND PROJECT MANAGEMENT
(For the candidates admitted from the academic year 2022-2023 onwards)

Note:

- (i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.
- (ii) **Part - B** and **Part - C** should be answered in answer booklet.

Time: 3 Hours

Max. Marks: 75

PART – A (20 × 1 = 20Marks)

Marks BL CO PO

Answer **ALL** Questions

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|---|---|---|---|----|
| 1. In which phase of waterfall model, does the project initiation and requirement gathering takes place? | 1 | 2 | 1 | 11 |
| (A) Planning | | | | |
| (B) Modeling | | | | |
| (C) Construction | | | | |
| (D) Communication | | | | |
| 2. A _____ is a collection of activities, action and tasks that are performed when some work product is to be created | 1 | 1 | 1 | 11 |
| (A) Stack | | | | |
| (B) Process | | | | |
| (C) Task | | | | |
| (D) Schedule | | | | |
| 3. What is the major drawback of spiral model? | 1 | 2 | 1 | 11 |
| (A) Higher amount of risk | | | | |
| (B) Additional functionalities are added later on | | | | |
| (C) Does not work well for smaller projects | | | | |
| (D) Strong approval and documentation control | | | | |
| 4. The prototyping model in software development is _____. | 1 | 1 | 1 | 11 |
| (A) A useful approach when a customer cannot define requirements clearly | | | | |
| (B) A reasonable approach when requirements are well defined | | | | |
| (C) A risky model that rarely produce a meaningful product | | | | |
| (D) The best approach to use for products with large development teams | | | | |
| 5. In agile, the number of customer stories implemented during the first release is termed as _____. | 1 | 1 | 1 | 11 |
| (A) Project velocity | | | | |
| (B) Risk value | | | | |
| (C) Assessment count | | | | |
| (D) Delivery rate | | | | |
| 6. Which one of the following is not a step of requirement engineering? | 1 | 1 | 2 | 11 |
| (A) Elicitation | | | | |
| (B) Design | | | | |
| (C) Analysis | | | | |
| (D) Documentation | | | | |

7. Estimation of software development effort for organic software in COCOMO is _____.
 (A) $E = 2.4$ (KLOC) 1.05 PM (B) $E = 2.4$ (KLOC) 1.07 PM
 (C) $E = 3.4$ (KLOC) 1.06 PM (D) $E = 2.0$ (KLOC) 1.05 PM
8. Given, optimistic LOC $S_{opt} = 2600$, pessimistic LOS $S_{pers} = 4000$, most likely LOC $S_m = 3800$. Calculate the expected value for the estimation variable.
 (A) 3000 (B) 3633
 (C) 3200 (D) 3666
9. COCOMO stands for
 (A) Consumed Cost Model (B) Common Control Model
 (C) Composition Cost Model (D) Constructive Cost Model
10. With reference to object oriented software engineering approach, _____ focuses on the elaboration of the problem.
 (A) Architectural design (B) Internal design
 (C) Component level design (D) External design
11. UML was designed for describing _____.
 (A) Object oriented system only (B) Architectural design only
 (C) Software requirement specification (D) Both object oriented system and architectural design
12. Which design model elements are used to depict a model of information represented from the user's view?
 (A) Architectural elements (B) Data design elements
 (C) Component level elements (D) User interface elements
13. The objective of _____ phase is to transform the design of the system into high-level language.
 (A) Planning phase (B) Design phase
 (C) Coding (D) Testing
14. _____ helps to detect the algorithmic and logical errors in code.
 (A) Code walkthrough (B) Code inspection
 (C) Code reuse (D) Code detection
15. Which of the following testing is also known as white box testing?
 (A) Code testing (B) Structural testing
 (C) Design based testing (D) Error guessing technique
16. A testing strategy that tests the application as a whole is _____.
 (A) Verification testing (B) Validation testing
 (C) Requirement testing (D) System testing
17. Which of the following risks are derived from the software or hardware technologies that are used to develop the system?
 (A) Managerial risk (B) Technology risk
 (C) Estimation risk (D) Organization risk

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| 18. _____ assess the risk and the plans for risk mitigation. | 1 | 2 | 5 | 11 |
| (A) Risk monitoring | | | | |
| (B) Risk planning | | | | |
| (C) Risk analysis | | | | |
| (D) Risk identification | | | | |
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| 19. What does the acronym "SWOT" stand for in the context of risk analysis? | 1 | 2 | 5 | 11 |
| (A) Software Workflow and (B) Software Workbench for Optimization Techniques | | | | |
| (C) Strengths, Weakness, Opportunities, Threats | | | | |
| (D) Systematic Workflow and Organizational Technique | | | | |
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| 20. What are the activities of program modularization and source code translation? | 1 | 1 | 5 | 11 |
| (A) Forward engineering | | | | |
| (B) Reverse engineering | | | | |
| (C) Reengineering | | | | |
| (D) Reversal engineering | | | | |

PART – B (5 × 8 = 40 Marks)

Answer **ALL** Questions

Marks BL CO PO

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| 21. a. With a neat sketch brief the types of process flow in software engineering. | 8 | 2 | 1 | 11 |
| (OR) | | | | |
| b. List out the merits and demerits of waterfall model and explain the same with a neat sketch. | 8 | 1 | 1 | 11 |
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| 22. a. With neat diagram brief about requirements elicitation and analysis process. | 8 | 2 | 2 | 11 |
| (OR) | | | | |
| b. Estimated LOC count is 56,100 assuming that your organization produces 450 LOC/PM with a burdened labor rate of \$7000 per person month, find the total estimated project cost and estimated effort in person months. | 8 | 3 | 2 | 2 |
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| 23. a. Illustrate the importance of use case diagram and draw the use case, sequence diagram for coffee vending machine that dispenses hot coffee. | 8 | 3 | 3 | 3 |
| (OR) | | | | |
| b. What are the essential steps involved designing user interface that optimizes usability and enhances user experiences? | 8 | 1 | 3 | 3 |
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| 24. a. List and brief any four coding methods that converts design into optimal software construction. | 8 | 1 | 4 | 11 |
| (OR) | | | | |
| b. What is cyclomatic complexity? What are the various methods to calculate cyclomatic complexity? | 8 | 2 | 4 | 11 |
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| 25. a. Compare and contrast proactive and reactive risk management strategies in project management and explain the same. | 8 | 2 | 5 | 9 |
| (OR) | | | | |
| b. With a neat sketch, brief the key steps involved in effective implementation of business process reengineering to enhance organizational efficiency and performance. | 8 | 3 | 5 | 9 |

PART – C (1 × 15 = 15 Marks)

Answer **ANY ONE** Question

Marks BL CO PO

26. Assume you are a software developer of the company. A client has approached for a better solution for the problem they have faced by them. The client has stated the risks and uncertainty that will lead to loss, if not properly planned. Justify with pictorial representation, which model to be chosen for software development. List its advantages and disadvantages. 15 3 1 11
27. Amaze is a project management software company. Their product is sold globally with a monthly pay-per-user model and is widely known among the project management community for being easy to use and able to operate on many different devices (PCs, Notebook, laptops, tablets, iPhones, iPads and android phones). The business problem is: Amaze must work on any popular device on the market and be able to support future devices. There must be only one version of the software for all devices. No special cases, no exception allowed suggest which architecture allowed suggest which architecture is suitable to build the same with a neat diagram and suitable description. Provide the justification for the selection of the architecture. 15 3 3 11

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