# K. K. Wagh Institute of Engineering Education & Research, Nashik

(An Autonomous Institute From A.Y. 2022-23)

| WINTER-2025 | |
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| Exam Seat No.: | |
| Academic Year:2025-2026 | Semester:I |
| Class:FYMCA | Program:MCA |
| Branch Code:M.C.A. | Pattern:2022 |
| Name of Course:Software Engineering | Course Code:MCA221005 |
| Max. Marks:60 | Duration:2.30 Hrs. |

**Instructions:** Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains __02___page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

| | | Marks | CO |
|---|---|---|---|
| **Question No. 1** | | | |
| 1a) | List the generic framework activities of a software process and state their purpose in brief. | (6) | CO1 |
| **Question No. 2** | | | |
| 2a) | List and briefly explain the types of requirements represented in the Kano model. | (6) | CO2 |
| **Question No. 3** | | | |
| 3a) | a) Apply the design model to a Student Information System and explain: Data design, Architectural design, Interface design, Component-level design. Show how these models interact during development. | (8) | CO3 |
| | **OR** | | |
| 3b) | Given a Library Management System, apply software design concepts to:<br>Identify abstraction, modularity, information hiding, and refinement<br>Explain how each concept improves the system design. | (8) | CO3 |
| 3c) | Apply user interface design principles to design a UI for a Mobile Banking Application, focusing on: User familiarity, Consistency, Error prevention, Feedback mechanisms. | (8) | CO3 |
| | **OR** | | |
| 3d) | Apply different architectural styles to the following scenarios:<br>• Real-time monitoring system<br>• Banking system<br>• Content management system<br>Select and justify appropriate styles for each case. | (8) | CO3 |
| **Question No. 4** | | | |

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| 4a) | For a Student Management System, apply the following size metrics: Lines of Code (LOC) , Token Count, Function Count.<br><br>Explain how each metric can be used for effort estimation. | (8) | CO4 |

**OR**

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| 4b) | Apply data structure metrics and information flow metrics to a Library Management System to Measure complexity and Identify modules with high information flow. | (8) | CO4 |
| 4c) | Apply use-case oriented metrics to an Online Exam Portal by identifying actors and use cases , estimating project size and effort based on use cases. | (8) | CO4 |

**OR**

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| 4d) | For a content-driven website, apply web engineering project metrics to estimate development effort, measure productivity and quality. | (8) | CO4 |

**Question No. 5**

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| 5a) | For a content-driven website, apply web engineering project metrics to estimate development effort, measure productivity and quality. | (8) | CO5 |

**OR**

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|---|---|---|---|
| 5b) | Apply software engineering codes of ethics to a real-world project scenario involving data privacy, user safety and professional responsibility. | (8) | CO5 |
| 5c) | A software engineer discovers a security flaw just before product release. Apply ethical decision-making steps and professional codes of ethics to decide the correct course of action. | (8) | CO5 |

**OR**

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| 5d) | Apply the SCM process and SCM repository to manage source code , documentation and test cases in a team-based development environment. | (8) | CO5 |

**····· End of question paper·····**