

# B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

## September / October 2023 Supplementary Examinations

**Programme: B.E.**

**Branch: Artificial Intelligence and Machine Learning**

**Course Code: 22AM5PCSED**

**Course: Software Engineering & Design Patterns**

**Semester: V**

**Duration: 3 hrs.**

**Max Marks: 100**

**Date: 14.09.2023**

**Instructions:** 1. Answer any FIVE full questions, choosing one full question from each unit.  
2. Missing data, if any, may be suitably assumed.

### UNIT - I

- 1 a) Illustrate the seven principles of Software Engineering Practice. **07**
- b) Explain Agile software development. Mention the principles of SCRUM methodology. **08**
- c) Illustrate the advantages and disadvantages of Halstead's Software Metrics. **05**

### UNIT - II

- 2 a) Distinguish between functional requirements vs non-functional requirements. Also mention any two functional and non-functional requirements for the "Login and Registration System" **08**
- b) Compare Extend, Includes and Generalization. **06**
- c) Design the use case diagram for library management system. **06**

### OR

- 3 a) Explain the Software Quality Guidelines. **07**
- b) What are the benefits of Use Cases? **05**
- c) Define cohesion with an example. Explain the levels of cohesion. **08**

### UNIT - III

- 4 a) What is boundary value analysis? Write the Test cases for input box accepting numbers between 1 and 1000 using Boundary value analysis **06**
- b) Define Integration testing? Explain the integration testing strategies. **08**
- c) Illustrate the testing strategy for Web Apps. How SQL Inject Attack is performed on the web? **06**

**Important Note:** Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

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| 6 | a) | List the Pattern Categories.                                       | <b>05</b> |
|   | b) | Illustrate the architecture pattern used in the Java Spring.       | <b>05</b> |
|   | c) | Describe the Pipes & Filters architecture pattern with an example. | <b>10</b> |

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| 7 | <p>a) Design a Publisher – Subscriber access control class diagram with a scenario of updation and notification.</p> <p>b) Explain the implementation and variants of proxy pattern.</p> | <p><b>10</b></p> <p><b>10</b></p> |
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