

Code: 19CS4801C

**IV B.Tech - II Semester – Regular Examinations – MAY 2023**

**SECURE SOFTWARE ENGINEERING  
(COMPUTER SCIENCE & ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

- Note: 1. This question paper contains two Parts A and B.  
 2. Part-A contains 5 short answer questions. Each Question carries 2 Marks.  
 3. Part-B contains 5 essay questions with an internal choice from each unit. Each question carries 12 marks.  
 4. All parts of Question paper must be answered in one place.

BL – Blooms Level

CO – Course Outcome

**PART – A**

|       |  | BL | CO  |
|-------|--|----|-----|
| 1. a) | Define software assurance and software security.                                 | L2 | CO1 |
| 1. b) | Explain the issues associated with requirements engineering for secure software. | L2 | CO1 |
| 1. c) | Describe about software security testing.  | L2 | CO1 |
| 1. d) | Describe secure architecture.  | L2 | CO1 |
| 1. e) | Explain the use of integration of security governance in software development.   | L2 | CO1 |

**PART – B**

|               |    |  | BL | CO  | Max. Marks |
|---------------|----|--|----|-----|------------|
| <b>UNIT-I</b> |    |  |    |     |            |
| 2             | a) | Identify the various threats to software security.                                     | L2 | CO1 | 6 M        |
|               | b) | Explain the benefits of detecting software security issues in the development process. | L2 | CO1 | 6 M        |

| <b>OR</b>       |    |  |    |     |     |
|-----------------|----|--|----|-----|-----|
| 3               | a) | List and describe the properties of secure software.   | L2 | CO1 | 6 M |
|                 | b) | Identify the methods of specifying and asserting desired security properties in software.        | L2 | CO1 | 6 M |
| <b>UNIT-II</b>  |    |  |    |     |     |
| 4               | a) | Explain the SQUARE process model and how it is used for requirements engineering.                | L2 | CO2 | 6 M |
|                 | b) | Identify the need to prioritize security requirements in software development.                   | L2 | CO2 | 6 M |
| <b>OR</b>       |    |  |    |     |     |
| 5               | a) | Identify the methods used for eliciting secure software requirements.                            | L2 | CO2 | 6 M |
|                 | b) | Compare and contrast the elements of secure software requirements.                               | L2 | CO2 | 6 M |
| <b>UNIT-III</b> |    |  |    |     |     |
| 6               | a) | Demonstrate the significance of software security in architecture and design.                    | L2 | CO2 | 6 M |
|                 | b) | Demonstrate the software security practices for architecture and design.                         | L2 | CO1 | 6 M |
| <b>OR</b>       |    |  |    |     |     |
| 7               | a) | Demonstrate the role of architectural risk analysis in software security.                        | L2 | CO1 | 6 M |
|                 | b) | Compare and contrast the security principles and guidelines in software architecture and design. | L2 | CO2 | 6 M |

| <b>UNIT-IV</b> |    |   |    |     |     |
|----------------|----|---|----|-----|-----|
| 8              | a) | Summarize the challenges of system assembly for software security.                    | L2 | CO3 | 6 M |
|                | b) | Illustrate the impact of security failures on system assembly.                        | L3 | CO3 | 6 M |
| <b>OR</b>      |    |   |    |     |     |
| 9              | a) | Compare and contrast the functional and attacker perspectives for security analysis.  | L2 | CO1 | 6 M |
|                | b) | Discover the drivers of system complexity and how they affect security.               | L3 | CO3 | 6 M |
| <b>UNIT-V</b>  |    |   |    |     |     |
| 10             | a) | Demonstrate the relationship between governance and software security.                | L3 | CO4 | 6 M |
|                | b) | Demonstrate the adoption of an enterprise software security framework.                | L3 | CO4 | 6 M |
| <b>OR</b>      |    |   |    |     |     |
| 11             | a) | Explain the concept of how much security is enough for software development projects. | L2 | CO1 | 6 M |
|                | b) | Interpret the role of project management in software security.                        | L3 | CO4 | 6 M |