VIT
Vellore Institute of Technology
(Deemed to be University under Section 3 of UGC Act, 1956)

REG.NO.:

SLOT: C2

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING
CONTINUOUS ASSESSMENT TEST - I
FALL SEMESTER 2025-2026

Programme Name & Branch	: B.Tech. Computer Science and Engineering and Business Systems
Course Code and Course Name	: CBS3002 - Information Security
Faculty Name(s)	: Dr. GOPICHAND G, Mr. NARAMALLI JAYAKRISHNA
Class Number(s)	:VL2025260104760, VL2025260105630
Date of Examination	: 19-AUGUST-2025
Exam Duration	: 90 minutes

Maximum Marks: 50

General instruction(s):

- Answer All Questions
- M - Max mark; CO – Course Outcome; BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)
- Course Outcomes: (Type the CO statements covered in this question paper. Use the CO number as per the syllabus copy)
  1. To understand security parameters and access control methods.
  2. To understand the fundamental policies and design principle of computing resources

Q. No	Question	M	CO	BL
1.	Evaluate the role of nation-state actors in advanced persistent threats (APTs). How can enterprises defend against such sophisticated attacks while ensuring *business continuity?*	10	1	4
2.	*Analyse the evolving challenges in maintaining the CIA triad in the era of cloud computing, IoT, and AI-driven systems. How can organizations balance these principles while adopting emerging technologies?"*	10	1	4
3.	In a government defense network using MAC, contractors are frequently added for short-term projects. Evaluate the limitations of MAC in such a dynamic environment. Propose a **hybrid MAC-based design** that preserves security clearance principles but allows controlled exceptions without violating classification rules. Justify your design choices with examples.	10	2	3
4.	Design a unified model combining DAC, MAC, and RBAC for a university cloud platform hosting academic research, student services, and administration portals. Your design should include: i) Access control matrix ii) Hierarchical role assignments iii) Mandatory classification enforcement Analyze how your unified model mitigates risks that each individual model alone could not handle.	10	2	4
5.	A global financial institution is implementing the Bell–LaPadula confidentiality model for its internal data systems. Analyze a scenario where the "no write down" and "no read up" rules conflict with the operational needs of a cross-functional fraud investigation team. Propose policy-level and technical strategies to reconcile the conflict without weakening confidentiality guarantees.	10	2	3

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