REG.NO.: 21BLC046

VIT

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

SLOT:G2+TG2

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING
CONTINUOUS ASSESSMENT TEST - II
WINTER SEMESTER 2024-2025

Programme Name & Branch	**: BTech CSE, BCI**
Course Code and Course Name	**: BCSE323L, DIGITAL WATERMARKING AND STEGNOGRAPHY**
Faculty Name(s)	**: DR. AKILA VICTOR**
Class Number(s)	**: VL2024250501612**
Date of Examination	**: 22.03.2025**
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

- CO1- Learn the fundamental concepts, principles, characteristics and performance measures of digital watermarking and steganography.
- CO2-Acquire the various concepts of watermarking for digital authentication and authorization schemes related to electronic documents, image and video.
- CO3-Gathering the various concepts of steganography to access the sensitive information concealing of message, image, audio or video within another file.

Q. No	Question	M	CO	BL
1.	A global law firm deals with highly confidential legal documents, such as contracts, intellectual property agreements, and case files, which are shared digitally between lawyers, clients, and other stakeholders. These documents must be protected against unauthorized access, tampering, and distribution, while also ensuring that the source of any document leak can be traced back to the individual who accessed it. How can the techniques of watermarking and cryptography be combined to enhance security against tampering and unauthorized distribution for the above scenario?	10	CO2	4
2.	A luxury fashion brand designs exclusive digital fashion collections and distributes high-resolution images of its designs to a select group of fashion influencers for promotional purposes. These images feature intricate details of their upcoming clothing lines and are protected by an invisible watermark containing the influencer's unique ID. The brand is concerned about potential unauthorized distribution of these high-resolution images on social media platforms. However, the images are often resized, compressed, or altered when posted on social media, which can distort or even remove the watermark. The brand needs a solution to recover the watermark without relying on any prior knowledge of the original image or requiring access to the unmodified version. Elucidate the type of restoration technique used in the above scenario and outline the steps involved in the process.	10	CO2	4

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3.	A multinational corporation is concerned about the security of its sensitive internal communications, particularly regarding intellectual property (IP) and upcoming product launches. Due to the potential for data interception by external attackers or rival companies, the organization decides to implement steganography to securely hide confidential information within everyday files like images and audio files. The goal is to send these files over the corporate network without raising suspicion while ensuring that only authorized personnel can retrieve the hidden information. Elucidate the different steps involved in the steganography for the above scenario?	10	CO1	2
4.	A law firm frequently exchanges sensitive legal documents with clients and other partners over email. To ensure that the contents of these documents remain confidential and are not intercepted or altered during transmission, the firm decides to implement steganography to hide critical information, such as case details and client identifiers, within image files. This ensures that even if someone intercepts the communication, they cannot easily detect or extract the hidden information. How can steganography be applied to secure the transmission of sensitive legal documents in the scenario described above? Explain the steps involved in the process and the security features that steganography provides for the same.	10	CO1	2
5.	You are assigned to transcribe a live seminar on "The Future of Artificial Intelligence" at a technology conference. The speaker is a well-known expert in the field, and the seminar includes a mix of technical language, examples of AI applications, and audience questions. The seminar is recorded, and your task is to transcribe the speaker's words accurately in real time using audio stenography software. How can steganography in the temporal audio steganography domain be used to securely transmit sensitive information for the above scenario? Describe the steps involved in the process and the security benefits provided by this method?	10	CO3	4

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