



**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY::PUTTUR
(AUTONOMOUS)**

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QUESTION BANK (DESCRIPTIVE)

Subject with Code: Digital Watermarking and Steganography (20CS1020)

Regulation: R20

Year & Sem: IV B.Tech & I Semester

UNIT–I

INTRODUCTION, WATERMARKING MODELS AND MESSAGE CODING

1	a	Define Steganography? List out watermarking Applications.	[L1][CO1]	[6 M]
	b	Explain briefly importance of digital watermarking.	[L2][CO1]	[6 M]
2	a	Explain about history of watermarking?	[L2][CO1]	[6 M]
	b	Differentiate steganography and watermarking in detail.	[L5][CO1]	[6 M]
3	a	Define Watermarking? List out properties of watermarking.	[L1][CO1]	[6 M]
	b	Explain the process of Information hiding. List out four categories of Information Hiding.	[L2][CO1]	[6 M]
4	a	How to evaluate watermarking systems.	[L2][CO1]	[6 M]
	b	Explain briefly how digital watermarking is used in owner identification.	[L2][CO1]	[6 M]
5	a	Explain briefly how digital watermarking is used in copy control.	[L2][CO1]	[6 M]
	b	Explain briefly how digital watermarking is used in Transaction Tracking.	[L2][CO1]	[6 M]
6		Discuss various Communication based models.	[L2][CO1]	[12M]
7	a	Discuss and justify the concept of Watermarking as Communications with Side Information at the Transmitter.	[L2][CO1]	[6M]
	b	Explain the concept of Geometric models of watermarking?	[L2][CO1]	[6M]
8	a	Explain briefly Watermarking as Multiplexed Communications?	[L2][CO1]	[6M]
	b	What is Error correction coding? Describe in detail?	[L1][CO1]	[6M]
9	a	Explain about Direct Message Coding	[L2][CO1]	[6M]
	b	What is Multi-symbol Message Coding? Discuss in brief.	[L1][CO1]	[6M]
10	a	Illustrate the concept of Detecting multi-symbol watermarks	[L2][CO1]	[6M]
	b	Determine the procedure to evaluate watermarking systems.	[L3][CO1]	[6M]

UNIT-II
WATERMARKING WITH SIDE INFORMATION & ANALYZING ERRORS

1	a	Define Informed Embedding? List and explain various methods used in informed embedding	[L1][CO2]	[6 M]
	b	Explain briefly watermarking with blind embedders.	[L2][CO2]	[6 M]
2	a	Explain about Watermarking with informed embedding	[L2][CO2]	[6 M]
	b	Differentiate informed embedding and informed coding in detail.	[L5][CO2]	[6 M]
3	a	Define False Positive Errors? Briefly explain models used to detect false positive errors.	[L1][CO2]	[6 M]
	b	Explain Embedding as an optimization Problem	[L2][CO2]	[6 M]
4	a	Describe Signal and Channel Models in side channel watermarking	[L2][CO2]	[6 M]
	b	Explain briefly optimizing with respect to a Detection Statistic Method	[L2][CO2]	[6 M]
5	a	Analyze optimal Watermarking for a Single Cover Work technique	[L4][CO2]	[6 M]
	b	Describe Optimal Coding for Multiple Cover Works in side channel information	[L2][CO2]	[6 M]
6		Discuss about Watermarking using Side Information	[L2][CO2]	[12M]
7	a	Discuss and justify the concept of Watermarking of Gaussian Signals?	[L2][CO2]	[6M]
	b	Explain the concept of Costa's writing on Dirty Paper?	[L2][CO2]	[6M]
8	a	Explain briefly Dirty-Paper Codes?	[L2][CO2]	[6M]
	b	What is Message Errors? Describe in detail?	[L1][CO2]	[6M]
9	a	Explain about False Positive Errors	[L2][CO2]	[6M]
	b	What is False Negative Errors? Discuss in brief.	[L1][CO2]	[6M]
10	a	Illustrate the concept of ROC Curves	[L2][CO2]	[6M]
	b	Determine the Effect of Whitening on Error Rates	[L3][CO2]	[6M]

UNIT-III
PERCEPTUAL MODELS

1		Define Fidelity? Fidelity and Quality type of perceptability?	[L1][CO3]	[12M]
2	a	Describe General form of a perceptual model	[L2][CO3]	[6 M]
	b	Explain about Perceptual Human Evaluation Measurement Techniques	[L2][CO3]	[6 M]
3	a	Define Perceptual Models? Briefly explain Automated Evaluation.	[L1][CO3]	[6 M]
	b	Discuss Spread spectrum coding	[L2][CO3]	[6 M]
4	a	How to evaluate Perceptual impact of Watermarks	[L2][CO3]	[6 M]
	b	Explain Frequency Sensitivity and Loudness Sensitivity	[L2][CO3]	[6 M]
5	a	Discuss Masking and Pooling	[L2][CO3]	[6 M]
	b	Describe Robust Watermarking Approaches	[L2][CO3]	[6 M]
6		Discuss about Watson's DCT-Based Visual Model	[L2][CO4]	[12M]
7		Explain the concept of a Perceptual Model for Audio	[L2][CO4]	[12M]
8		What is Robust Watermarking? Describe in detail?	[L1][CO4]	[12M]
9		What is Redundant Embedding? Discuss in brief.	[L1][CO4]	[12M]
10		Determine the Effect of Embedding in Perceptually Significant Coefficients	[L3][CO4]	[12M]

UNIT-IV
WATERMARK SECURITY & AUTHENTICATION

1		Explain Security requirements in watermarking	[L2][CO5]	[12M]
2	a	Describe Block-Wise Content Authentication	[L2][CO5]	[6 M]
	b	Explain about Sample-Wise Content Authentication	[L2][CO5]	[6 M]
3	a	Define Embedded Redundancy? Briefly explain.	[L1][CO5]	[6 M]
	b	Discuss Self-Embedding	[L2][CO5]	[6 M]
4	a	Explain Fragile Watermarks	[L2][CO5]	[6 M]
	b	Explain Fragile Watermarks and Telltale Watermarks	[L2][CO5]	[6 M]
5	a	Discuss Embedded Redundancy	[L2][CO5]	[6 M]
	b	Describe Localization Approaches	[L2][CO5]	[6 M]
6		Discuss about Watermark security and cryptography	[L2][CO5]	[12M]
7		List and explain various security attacks on watermarking.	[L2][CO5]	[12M]
8		What is Exact authentication? Describe in detail?	[L1][CO5]	[12M]
9		What is Selective authentication? Discuss in brief.	[L1][CO5]	[12M]
10		Differentiate Legitimate versus Illegitimate Distortions	[L3][CO5]	[12M]

UNIT-V
STEGANOGRAPHY

1		Explain Steganography communication in detail.	[L2][CO6]	[12M]
2	a	Describe Cachin's Definition of Steganographic Security	[L2][CO6]	[6 M]
	b	Explain about Statistics Preserving Steganography	[L2][CO6]	[6 M]
3	a	Define Model-Based Steganography? Briefly explain.	[L1][CO6]	[6 M]
	b	Discuss Masking Embedding as Natural Processing	[L2][CO6]	[6 M]
4	a	Explain Matrix Embedding	[L2][CO6]	[6 M]
	b	Explain Nonshared Selection Rule	[L2][CO6]	[6 M]
5	a	Discuss Steganography for Dissidents	[L2][CO6]	[6 M]
	b	Describe Steganography for Criminals	[L2][CO6]	[6 M]
6		Discuss about theoretic foundations of steganography	[L2][CO6]	[12M]
7		List and explain – Practical steganographic methods	[L2][CO6]	[12M]
8		List and explain Applications of Steganography	[L1][CO6]	[12M]
9		What is Steganalysis? Discuss in brief.	[L1][CO6]	[12M]
10	a	Explain Forensic Steganalysis.	[L3][CO6]	[6M]
	b	Describe The Influence of the Cover Work on Steganalysis	[L3][CO6]	[6M]