Q. Code:323386

Reg. No. | | | | | | | | | | | | | |

M.E/ M.TECH. DEGREE EXAMINATIONS, MAY 2024

Second Semester

CF22201 – FUNDAMENTALS TO SECURITY IN BIOMETRICS

(*Cyber Forensics and Information Security)*

(Regulation2022)

TIME:3 HOURS **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Identify various biometric techniques	**4**
CO 2	Design biometric recognition systems	**6**
CO 3	Develop simple biometric based application	**6**
CO 4	Elucidate the need for biometric security	**3**
CO 5	Analyze the various attacks possible in Biometric system	**4**

PART- A(20x2=40Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	Identify the parameters used for knowledge based and token based person recognition.	**1**	**4**
2.	Define Feature Extraction.	**1**	**2**
3.	Write down the formula for Genuine Accept Rate (GAR).	**1**	**3**
4.	Distinguish between Overt versus covert deployment.	**1**	**4**
5.	What do you mean by latent prints?	**2**	**2**
6.	Define the Piezoelectric effect.	**2**	**2**
7.	Write down the three-step procedure to perform a meaningful orientation field smoothening.	**2**	**3**
8.	When do we say a fingerprint is Whorl?	**2**	**4**
9.	List down the advantages of Face Modalities.	**3**	**2**
10.	Write the objectives of face modeling.	**3**	**3**
11.	Is Iris Segmentation difficult? Justify the above statement with reasons.	**3**	**4**
12.	Mention the drawbacks of non-ideal irides.	**3**	**2**
13.	What is Special about Behavioral Biometrics Data Acquisition?	**4**	**2**
14.	Point out the metrics used for analyzing biometric errors.	**4**	**2**
15.	Distinguish between Speech and voice recognition.	**4**	**2**
16.	What is meant by Ear occlusion?	**4**	**2**
17.	Define Zero effect attack.	**5**	**2**
18.	What is meant by De Duplication?	**5**	**2**
19.	Investigate in what different ways Obfuscation can be done by the adversary?	**5**	**4**
20.	Highlight the physiological properties that have been used for spoof detection.	**5**	**2**

PART- B (5x 10=50Marks)

			Marks	CO	RBT LEVEL
21. (a)	Illustrate with a neat sketch about the Biometric functionalities.		**(10)**	**1**	**3**
	(OR)				
(b)	Demonstrate how Biometric systems are used for authenticating individuals by taking any three real-time biometric applications.		**(10)**	**1**	**3**
22. (a)	Investigate the major ways of acquiring and digitizing the fingerprint of an individual with neat illustrations.		**(10)**	**2**	**4**
	(OR)				
(b)	Examine how palm print recognition is used in digital forensics and how it is used to gain access control over systems.		**(10)**	**2**	**3**
23. (a)	Illustrate the Schematic of a cascaded classifier to speed-up the face detection process.		**(10)**	**3**	**3**
	(OR)				
(b)	Demonstrate about the Face Bunch Graph (FBG) Schematic of generating image and model graphs from probe and gallery images.		**(10)**	**3**	**3**
24. (a)	Write short notes on a) Keystroke Dynamics and its constraints b)Merits and Demerits of Keystroke Dynamics.		**(10)**	**4**	**3**
	(OR)				
(b)	Write short notes on a) Gait Recognition System b)Voice Recognition System		**(10)**	**4**	**3**
25. (a)	**(i)**	Illustrate the Four major classes of security threats in a biometric system with neat diagrams.	**(6)**	**5**	**3**
	(ii)	Demonstrate mimicry attacks with examples.	**(4)**	**5**	**3**
	(OR)				
(b)	Apply the type of Authentication mechanism used to secure the biometric template using a key binding biometric cryptosystem.		**(10)**	**5**	**3**

PART- C (1x 10=10Marks)

(Q.No.26 is compulsory)

		Marks	CO	RBT LEVEL
26.	Evaluate the performance of Iris Recognition systems used in UAE for identifying expellees attempting to re-enter the country and an iris recognition system being used in a coal mine in China with a neat block diagram.	**(10)**	**3**	**5**

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