

**DEPARTMENT OF COMPUTING TECHNOLOGIES**

SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamilnadu

**Academic Year: 2032-2024 (ODD/EVEN)**

**Test: CLAT-3**

**Date: 9. 11.2023**

**Course Code & Title: 18CSE357T-Biometrics (Elective)**

**Duration: 100 minutes**

**Year & Sem: 3 & 4 Year/5 & 7 Sem**

**Max. Marks: 50**

**Course Articulation Matrix: (to be placed)**

Course Outcomes	P O 1	P O 2	P O 3	P O 4	P O 5	P O 6	P O 7	P O 8	P O 9	P O 10	P O 11	P O 12	P O 13	P O 14	P O 15
CO1	3	3	3	3	-	-	3	-	-	-	-	-	-	-	-
CO2	3	3	3	3	-	-	3	-	-	-	-	-	-	-	-
CO3	3	2	2	2	-	-	2	-	-	-	-	-	-	-	-
CO4	3	2	2	2	-	3	2	3	-	-	-	-	-	-	-
CO5	3	3	1	-	-	-	-	-	-	-	-	-	-	-	-
CO6	3	3	3	3	-	-	3	-	-	-	-	-	-	-	-

**Part – A (10 × 1 = 10 Marks)**

**Instructions: Answer all**

Q. No	Question	Marks	BL	CO	PO	PI Code
<b>1</b>	The primary purpose of using biometrics is to provide -----non-repudiable authentication. a. Repudiable authentication b. Non-repudiable authentication c. Identification d. Recursive Process  <b>ANSWER b</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>1.6.1*</b>
<b>2</b>	Which is not comes under Physiological Biometric traits_____ a. Face recognition b. Finger Print c. Iris d. Signature  <b>ANSWER d</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>1.6.1</b>
<b>3</b>	Hidden biometrics are_____ a. Subjective b. Appearance c. Intrinsic d. Degradation Process. <b>ANSWER c</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>4</b>	<b>1.6.1</b>
<b>4</b>	Among the given options, what can be correctly referred to as a proprietary finger scanning method: a. Extraction b. Recognition c. Auto-correction d. Bifurcation  <b>ANSWER a</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>2</b>	<b>1.6.1</b>
<b>5</b>	Intrusion affects the basic _____ of a biometric system. a. Integrity b. Segmentations c. Edge d. Model <b>ANSWER a</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>1.6.1</b>
<b>6</b>	_____is the main concern in immigration and naturalization service Unique Identification Authority	<b>1</b>	<b>1</b>	<b>5</b>	<b>2</b>	<b>1.6.1</b>

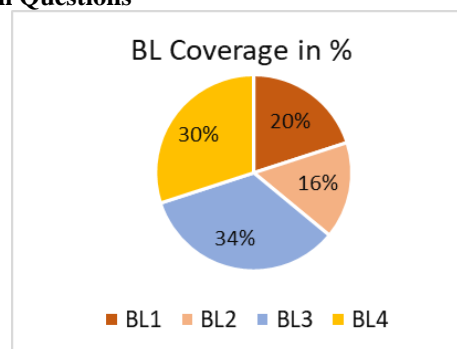
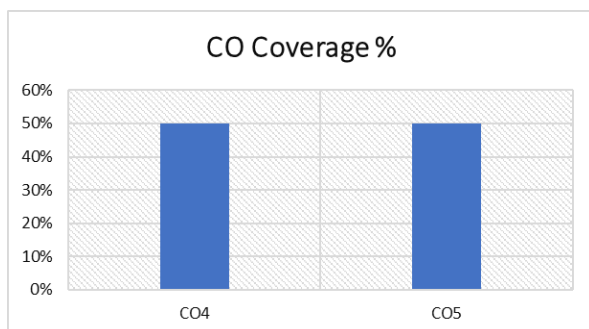
	a. Identification b. Authentication c. Attack d. Security <b>ANSWER d</b>					
7	_____ is used for more effective Password Management in banking a. Internet Banking b. Mobile Banking c. Single Sign on d. Branch Banking <b>ANSWER c</b>	1	1	5	2	1.6.1
8	___ Biometric App used in Airport to compare your passport to a photo capture of your face to verify you a. Automated Border Access Technology – eTech b. Automated Airport Control technology – eCtrl c. Automated User Control technology – ePass d. Automated Border Control technology – eGates <b>ANSWER d</b>	1	1	5	1	1.6.1
9	_____ is the main concern in immigration and naturalization service Unique Identification Authority a. Identification b. Authentication c. Attack d. Security <b>ANSWER d</b>	1	1	5	1	1.6.1
10	___ traits are also considered classic or traditional, such as faces, fingerprints or signatures a. Soft Biometric b. Hidden Biometric c. Hard Biometric d. Functional Biometric <b>ANSWER c</b>	1	1	5	2	1.6.1
<p align="center"><b>Part – B (5× 2 = 10 Marks)</b>  <b>Instructions: Answer any five</b></p>						
11	<b>What is meant by sensor fusion? State its reasons.</b> Sensor fusion is combining of sensory data or data derived from disparate sources such that the resulting information has less uncertainty than would be possible when these sources were used individually.	2	2	4	2	1.6.1
12	<b>Explain about hybrid biometric cryptosystem.</b> When a template security scheme clearly involves elements from both the basic approaches, (feature transformation approach and biometric cryptosystem) it is referred to as a hybrid biometric cryptosystem.	2	2	4	2	1.6.1
13	<b>State the three properties of template.</b> <ul style="list-style-type: none"> <li>• Cryptographic security</li> <li>• Performance</li> <li>• Revocability</li> </ul>	2	2	4	2	1.6.1
14	<b>Distinguish between Impersonation and Obfuscation.</b> The impersonation could be either casual or targeted. Any deliberate attempt by an attacker to change his biometric characteristic in order to avoid detection by the biometric system is called obfuscation.	2	3	5	3	1.6.1
15	<b>What are the types of sensor fusion algorithms?</b> Central limit theorem <ul style="list-style-type: none"> <li>• kalman filter</li> <li>• bayesian networks</li> <li>• dempster – shafer</li> </ul>	2	3	5	3	1.6.1
16	<b>List the applications of biometrics.</b> Logical Access Control; <ul style="list-style-type: none"> <li>• Physical Access Control;</li> <li>• Time and Attendance;</li> </ul>	2	2	5	3	1.6.1

	<ul style="list-style-type: none"> <li>• Law Enforcement;</li> <li>• Surveillance.</li> </ul>					
<b>Part – C (15× 2 = 30 Marks)</b> <b>Instructions: Answer all</b>						
17	<p>Describe</p> <p><b>(i) Impersonation</b> This refers to the situation where an impostor attempts to intrude the system by posing himself as another authorized user. • The impersonation could be either casual or a targeted.</p> <p><b>(ii) Obfuscation</b> Any deliberate attempt by an attacker to change his biometric characteristic in order to avoid detection by the biometric system is called obfuscation.</p> <p><b>(iii) Spoofing</b> This is the most well-known attack at the user interface level, and it involves the presentation of a spoof biometric trait. • A spoof is defined as any counterfeit biometric that is not obtained from a live person</p>	15	4	4	3	1.6.1
	(or)					
18	<p>What are the five ways to breach the security of a biometric system? Explain each in detail.</p> <p>• <b>Collusion</b> This refers to the scenario where an authorized user willingly turns malicious and attacks the biometric system either individually or in collaboration with external adversaries</p> <p>• <b>Coercion</b> A coercion attack is similar to collusion, the only difference being that a coerced user does not carry out the attack willingly</p> <p>• <b>Negligence</b> External attackers can also exploit the negligence of authorized users in order to circumvent the biometric system.</p> <p>• <b>Enrollment Fraud</b> The adversary may enroll himself into the biometric system illegally (under a false identity) by producing his biometric traits along with false credentials</p> <p>• <b>Exception Abuse</b> Most biometric systems are equipped with a fall-back mechanism in order to permit handling of exceptional situations that may cause denial of-service to legitimate users.</p>	15	4	4	3	1.6.1
19	<p><b>Explain the pros and cons of implementing Biometric Application in Airport Screening Process.</b> biometrics is improving your overall experience. To start, many states around the world now require biometric identification as part of the VISA application process. In the UK, for instance, you can share your digital identity – in the form of fingerprints or a facial scan – with the authorities to expedite your application and the pre-screening process Moreover, airports are beginning to trial new forms of mobile check-in to provide a seam Moreover, biometrics is helping to remove the hassle of multiple checks while in the airport. Whether you're purchasing goods in duty free or about to board the flight, biometrics will eliminate the need for you to present your boarding pass or passport to verify your identity. Instead, you will be a biometric token – based on facial recognition software –which allows you to move about the airport freely and securely.</p>	15	3	5	3	1.6.1
	(or)					
20	<p><b>Clarify the role of Biometrics in Stock Market. Give a detailed elucidation of effects of Biometric system in the stock market.</b> So, Biometrics does play a role in Stock Market sector as its wide series of implementations on different security devices and hardware, led to huge production of capacitive scanners and cameras, which are capable of real-time facial recognition and</p>	15	3	5	3	1.6.1

	data capturing. Some of the leading companies are Synaptics, Gentex, Nvidia and Alibaba. Top Leading Companies in this sector <ul style="list-style-type: none"> <li>• SYNAPTICS</li> <li>• GENTEX</li> <li>• NVIDIA</li> <li>• ALIBABA</li> <li>• FaceX</li> </ul>					
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**\*Performance Indicators are available separately for Computer Science and Engineering in AICTE examination reforms policy.**

**Course Outcome (CO) and Bloom's level (BL) Coverage in Questions**



**Approved by the Audit Professor/Course Coordinator**