**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

B.Tech Degree S8 (R,S) Examinations April 2026 (2019 Scheme)

# Course Code: CCT402
# Course Name: BIOMETRIC SECURITY

**Max. Marks: 100** **Duration: 3 Hours**

## PART A

***Answer all questions, each carries 3 marks.***

| | | Marks |
|---|---|---|
| 1 | Explain about the basic biometric technologies. | (3) |
| 2 | Explain the commercial applications of biometric system. | (3) |
| 3 | Explain three main types of friction fridge patterns commonly observed in fingerprints. | (3) |
| 4 | Write a modified field estimation algorithm to handle the creases in palm prints. | (3) |
| 5 | List out the Facial scanning strengths and weakness. | (3) |
| 6 | How LDA is typically applied in face recognition? | (3) |
| 7 | What is Iris Encoding? | (3) |
| 8 | How iris normalization works? | (3) |
| 9 | Write a short note on infrastructure attacks. | (3) |
| 10 | Explain about spoofing. | (3) |

## PART B

***Answer any one full question from each module, each carries 14 marks.***

### Module I

| | | | |
|---|---|---|---|
| 11 | a) | Discuss any three performance measures in biometric systems. | (9) |
| | b) | Explain the characteristics of a good biometric system. | (5) |

**OR**

| | | | |
|---|---|---|---|
| 12 | | Explain the following biometric technologies:<br>a. Eye Recognition<br>b. Voice Recognition<br>c. Vein Recognition | (14) |

### Module II

| | | | |
|---|---|---|---|
| 13 | a) | Discuss the finger scan technologies. | (8) |
| | b) | Briefly explain Singularity extraction, Ridge extraction. Minutiae extraction. | (6) |

**OR**

14 a) Explain the fingerprint acquisition with sensing techniques. (10)

b) List the finger scan strengths and weakness. (4)

**Module III**

15 Explain two most well-known schemes for analysis of local textures. (14)

**OR**

16 Explain the popular algorithm for detecting human faces in images. (14)

**Module IV**

17 a) Explain the Design of an Iris recognition system. (10)

b) Discuss any two ear recognition techniques. (4)

**OR**

18 Explain the performance evaluation in iris scanning (14)

**Module V**

19 a) Explain about the adversary attack (7)

b) Explain the biometric databases. (7)

**OR**

20 Any attempt by an attacker to break into the system by presenting a biometric trait can be considered as an attack at the user interface level. Explain the possible attacks and countermeasures at this level. (14)

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