

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
B.Tech Degree S8 (S) Examination September 2025 (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 different applications of a biometric system. | (3) |
| 2 | Differentiate between a traditional authentication system and a biometric system. | (3) |
| 3 | Explain the method of Synthesis used in fingerprint biometrics. | (3) |
| 4 | Explain how palm print features can be utilized for biometric recognition. | (3) |
| 5 | Which are the different stages involved in the process of face recognition? | (3) |
| 6 | What is heterogeneous face recognition? | (3) |
| 7 | Describe the strengths and weaknesses of a retina vascular pattern. | (3) |
| 8 | Explain the challenges involved in ear detection. | (3) |
| 9 | Which are the major security threats faced by a biometric system? | (3) |
| 10 | What are the requirements in biometric template security? | (3) |

PART B

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

Module I

- | | | |
|----|---|-----|
| 11 | a) Explain how biometrics can be used in identification and matching. | (8) |
| | b) Which are the different performance measures used in evaluation of a biometric system? | (6) |

OR

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|----|--|------|
| 12 | a) Which are the basic building blocks of a biometric system? Explain. | (10) |
| | b) How verification is performed in biometric systems? | (4) |

Module II

- | | | |
|----|--|-----|
| 13 | a) Explain the feature extraction process involved in fingerprint recognition methodology. | (8) |
| | b) Describe the friction ridge pattern types obtained at different levels of feature extraction process. | (6) |

OR

- 14 a) Explain the steps involved in Minutiae Matching. (8)
b) Show how image acquisition can be done using different sensing techniques. (6)

Module III

- 15 a) Explain the process of feature extraction and matching in face recognition. (9)
b) How image acquisition is done in the process of face recognition? (5)

OR

- 16 a) What is face modelling? Explain. (8)
b) Differentiate between Signature scan and Keystroke scan. (6)

Module IV

- 17 a) Explain the working of an iris recognition system. (9)
b) Which are the techniques involved in quality assessment of iris scan biometric systems? (5)

OR

- 18 a) How image capturing is done in hand geometry based verification systems? (7)
b) Which are the techniques proposed for ear detection in a given image? (7)

Module V

- 19 a) Explain the different types of insider attacks against a biometric system. (8)
b) Which are the user interface level attacks? (6)

OR

- 20 a) What are the measures that can be taken for spoof detection? (5)
b) Which are the different types of attacks on biometric processing? (9)
