



## P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

**Eighth Semester, B.E. - Electronics and Communication Engineering**

**Semester End Examination; May / June - 2018**

### Biometrics

*Time: 3 hrs*

*Max. Marks: 100*

*Note: Answer FIVE full questions, selecting ONE full question from each unit.*

#### UNIT - I

- |      |  |   |
|------|--|---|
| 1 a. | Define Biometrics. Explain the architecture of general Biometric system.                       | 8 |
|      | b. List the different types of performance measures used in a Biometric system.                | 6 |
|      | c. Distinguish between Biometric and Traditional authentication methods.                       | 6 |
| 2 a. | Explain any two features extraction methods for character recognition                          | 6 |
|      | b. Write a note on multilayer neural network for hand written character recognition.           | 6 |
|      | c. Explain the isolated handwritten Devanagari character recognition using Fourier descriptor. | 8 |

#### UNIT - II

- |      |  |   |
|------|--|---|
| 3 a. | Write a note on face detection in video sequence.                          | 6 |
|      | b. What are the practical challenges in face Biometric system?             | 6 |
|      | c. What are the various advantages and disadvantages of face Biometrics?   | 8 |
| 4 a. | Explain the parameters used to evaluate the performance of Iris Biometric. | 6 |
|      | b. Explain the various steps of k-means of clustering algorithm.           | 8 |
|      | c. Briefly explain the application of Iris Biometreics .                   | 6 |

#### UNIT - III

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|------|---|----|
| 5 a. | With a neat diagram, explain the fingerprint recognition system.  | 6  |
|      | b. What are the different types of sensors used in image acquisiton of finger prints.                               | 4  |
|      | c. Write a note of minuatiae extraction and finger print indexing.  | 10 |
| 6 a. | Why sign language is required? Differentiate between sign and verbal languages. Mention the types of sign language. | 10 |
|      | b. Explain briefly SIFT algorithm for feature extraction of Hand Gesture Biometric.                                 | 10 |

#### UNIT - IV

- |      |  |   |
|------|--|---|
| 7 a. | Explain Soft Biometric.  | 6 |
|      | b. Write the comparison of various Biometrics in terms of privacy.                         | 6 |
|      | c. Write a note on Biometrics with privacy enhancement.                                    | 8 |
| 8 a. | With a neat diagram, explain the architecture of multimodal Biometric.                     | 6 |
|      | b. What are the characteristics of Multimodal Biometrics? Mention its advantages.          | 6 |
|      | c. Explain DES and RSA algorithm for Biometric cryptography and compare their performance. | 8 |

**UNIT - V**

- 9 a. Explain basic framework, classification, characteristics and applicatoin of image water marking . 8
- b. Explain the general block diagram of water marking. 6
- c. What are the issues and challenges in RFID Biometric. 6
- 10 a. Explain the role of Biometrics in enterprise and Border Security. 7
- b. Explain briefly the different types of Biometrics on the basis of scanning method. 7
- c. Write a note on Application Program Interface (API). 6

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