Seat No.: _____                                    Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY
## BVOC - SEMESTER–VI EXAMINATION – SUMMER 2022

**Subject Code:1160204**                                    **Date:09-06-2022**
**Subject Name:Introduction to Biometrics**
**Time:10:30 AM TO 12:30 PM**                       **Total Marks: 50**

**Instructions:**
1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

|       |     |                                                                                      | **Marks** |
|-------|-----|--------------------------------------------------------------------------------------|-----------|
| **Q.1** | **(a)** | What is biometric system? Draw and explain basic architecture of the same.       | **05** |
|       | **(b)** | Draw and explain the architecture for Multimodal biometric systems with their advantages, disadvantages and limits. | **05** |
| **Q.2** | **(a)** | Explain various Biometric pattern recognition methods.                            | **05** |
|       | **(b)** | With suitable diagram, explain the process of matching in biometric system.        | **05** |
|       |     | **OR**                                                                               |        |
|       | **(b)** | Explain verification and identification in biometric system.                       | **05** |
| **Q.3** | **(a)** | Explain Biometric System errors and evaluation.                                   | **05** |
|       | **(b)** | Explain Biometric system vulnerabilities.                                          | **05** |
|       |     | **OR**                                                                               |        |
| **Q.3** | **(a)** | Explain various modes of Biometric System.                                         | **05** |
|       | **(b)** | Explain covert acquisition in Biometric System.                                    | **05** |
| **Q.4** | **(a)** | Explain algorithm for DNA matching.                                               | **05** |
|       | **(b)** | Explain the concept of Facial Recognition in detail.                              | **05** |
|       |     | **OR**                                                                               |        |
| **Q.4** | **(a)** | Explain various levels of fusion in detail.                                        | **05** |
|       | **(b)** | Explain the concept of Retina Scan in detail.                                     | **05** |
| **Q.5** | **(a)** | How do we create biometric database? Explain with suitable example.                | **05** |
|       | **(b)** | Relate the support vector machines with biometric authentication systems.           | **05** |
|       |     | **OR**                                                                               |        |
| **Q.5** | **(a)** | Explain the different horizontal classification of biometric applications.          | **05** |
|       | **(b)** | Explain various data formats for Biometrics.                                        | **05** |

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