



DBL-E5032

Seat No. _____

M. C. A. (Sem. V) Examination

June - 2022

Biometric Technologies : E5032

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

Instruction : Attempt any five of the following.

- 1 (a) Attempt the following : 4
- (1) _____ characteristics are based on direct measurements of a part of the human body.
 - (2) The process by which a user's biometric data is initially acquired, assessed, processed and stored in the form of a template for ongoing use is known as _____.
 - (3) Give full form of FTE.
 - (4) Give full form of FNMR.
- (b) What is Enrollment ? 2
- (c) Explain Verification and Identification. 3
- (d) How Biometrics machine works ? 5
- 2 (a) Attempt the following : 4
- (1) _____ characteristics indirectly measure characteristics of the human body.
 - (2) _____ is a predefined number, generally chosen by a system administrator, which establishes the degree of correlation necessary for a comparison to be deemed a match.
 - (3) Give full form of FAR.
 - (4) Give full form of EER.
- (b) What is Biometrics ? 2
- (c) Discuss benefits of Biometrics versus traditional authentication methods. 3
- (d) Explain False Match and False Non Match Rate. 5

- 3 (a) Attempt the following : 4
- (1) Give full form of ICA.
 - (2) Give full form of LFA.
 - _____ scanners work via sound waves ultrasound Technology.
 - (3) Fingerprint ridges and valleys are characterized by discontinuities and irregularities known as _____.
 - (4) LDA is also known as _____.
- (b) What is Eigenfaces ? 2
- (c) List and explain advantages and disadvantages of fingerprint technology. 3
- (d) Explain applications of fingerprint technologies. 5
- 4 (a) Attempt the following : 4
- (1) Give full form of EBGM.
 - (2) Give full form of LDA.
 - (3) Give full form of PCA.
 - (4) Eigenfaces also known as _____.
- (b) What is Tensorfaces ? 2
- (c) List and explain Fingerprint technologies. 3
- (d) Explain how Facial Recognition technology works ? 5
- 5 (a) Attempt the following : 4
- (1) The _____ is a thin layer of cells at the back of the eyeball of vertebrates.
 - (2) The retina's complex network of _____ is a physiological characteristic that remains stable throughout the life of a person.
 - (3) Iris recognition technology uses, trabecular meshwork, rings, furrows, freckles, and the corona as distinctive characteristics. True or False.
 - (4) Hand geometry considers different features of the hand and fingers as their distinctive characteristics. True or False.
- (b) What is eye signature ? 2
- (c) Explain strength and weakness of Iris scan. 3
- (d) Explain Retina Recognition. 5

- 6 (a) Attempt the following : 4
- (1) _____ capture capillaries deep within the eye by using unique near-infrared cameras.
 - (2) _____ considers different features of the hand and fingers as their distinctive characteristics.
 - (3) Retina-scan technology is best developed in high-security environments where user convenience is not a priority. True or False.
 - (4) Iris-scan technology requires the acquisition of a high-resolution image of the Eyes. True or False.
- (b) List advantages and disadvantages of Retina scan. 2
- (c) How Hand geometry works ? 3
- (d) Explain how Iris scan recognition works ? 5
- 7 (a) Attempt the following : 4
- (1) _____ Recognition technology falls under both the physiological and behavioural biometric umbrellas.
 - (2) _____ recognition uses Geometry, Principle Line and Wrinkle features.
 - (3) Gait recognition technique recognizing someone from some meters away. True or False.
 - (4) Signature scan is a behavioural biometric technology. True or False.
- (b) Discuss application of Voice Recognition. 2
- (c) How palmprint recognition works ? 3
- (d) Explain Keystroke Recognition. 5
- 8 (a) Attempt the following : 4
- (1) _____ templates are larger than other biometrics technology.
 - (2) _____ recognition techniques recognizing someone from some meters away.
 - (3) Keystroke-scan technology utilizes a person's distinctive signature patterns for verification. True or False.
 - (4) Keystroke scan is a behavioural biometrics technology. True or False.

- (b) What are performance issues in Voice Recognition ? 2
- (c) Explain Gait Recognition. 3
- (d) How Voice Recognition works ? 5
- 9 (a) Attempt the following : 4
- (1) _____ type of reader works with a radio frequency that communicates when the card comes close to the reader.
- (2) Give full form of FTC.
- (3) Which type of smart card reader requires a physical connection to the cards, made by inserting the card into the reader?
- (4) _____ biometric system uses more than one biometric trait for authentication of individual.
- (b) What is Multimodal Biometrics ? 2
- (c) List and explain smart card readers. 3
- (d) List and explain types of Taxonomy. 5
- 10 (a) Attempt the following : 4
- (1) In _____ level fusion, the outputs of different matchers may be fused to obtain a single/final decision.
- (2) _____ system that allows obtaining data from various sensor using one biometric feature.
- (3) A magnetic stripe card has a strip of _____ tape material attached to its surface.
- (4) Unimodal biometric system uses a single biometric trait for authentication. True or False.
- (b) Explain smart card chips. 2
- (c) List and explain level of fusion. 3
- (d) Discuss smart card applications. 5
-