PRATWAL
1933237731

1. Discus the significance of sampling and quantization in processing of digital image 4
2. Discuss the importance of image pre-processing in understanding the digital image data 4
3. Justify 'Image analysis and understanding is a useful task for betty society building 4
4. Discuss the importance of biometric technology considering the current application 4
5. Explain Image representation

1 The sampling rate determines the spatial resolution of the digitized image, while the quantization level determines the number of grey levels in the digitized image.
A magnitude of the sampled image is expressed as a digital value in image processing. The changeover between continuous values of the image function and its digital equivalent is called quantization. The number of quantization levels should be high enough for human perception of the fine shading details in the image.

2 Preprocessing involves operations on images at the lowest level of abstraction where both input and output images are intensity images. The aim of preprocessing is an improvement of the image data that eliminates distract ~~dis~~ distortions or enhances some image features suitable for further prowsing. Image enhancement

is the most appealing preprocessing technique. Basically the idea behind enhancement technique is to bring out detail that is obscured or simply to highlight certain features of interest in an image such as changing brightness & contrast etc"

4. Biometric refers to technologies for measuring and analyzing a person's physological and or behavioral characteristics. These characteristics are unique to individuals hence can be used to verify or identify a person. Some example of different biometrics are face, fingerprint, voice, Iris, Retina scan, signature, DNA etc.

Biometric technology is observed by many as the most effective and safe method of individual identification. It is very useful for ID verification in a range of goverment organizations, banks and financial institutions and high securing areas. It is high individual identification accuracy.

3. The field of digital image processing has seen continuous and significant expansion in recent years. The usefulness of this technology is seeming in many different fields covering medicine through remote sensing. The advances and wide availability of image processing hardware has further

enhanced the usefulness of image processing. Some of the major fields in which digital image processing is widely used are mentioned below

- Agriculture
- Augmented reality
- Autonomous vehicles
- Biometrics
- Character recognition
- Forensics
- Industrial quality inspection
- Face recognition
- Geo-science
- Microscopic imaging.

5. Selecting a good representation is only part of the solution for transforming image data into a form suitable for subsequent processing. Description also called feature extraction that deals with extracting attributes that result in some quantitative information of interest and are basic for discriminating one class of objects from another. The feature extraction techniques are devised to extract features of an image. The feature extraction technique extracts high level feature needed in order to perform classification of objects under observation. Features are those items which uniquely describe an object such as its size, shape, composition etc.