Dr. A.P.J. Abdul Kalam Technical University (AKTU) · B.Tech Theory Examination

Image Analytics

KDS-061 · Jun 2023

Time: 3 Hours **Max. Marks: 100**

Attempt all Sections.
If require any missing data; then choose suitably.

SECTION A

1(a)	What is the Digital Image Processing?	2	U1
1(b)	Name some applications of digital image processing.	2	U1
1(c)	Differentiate opening and closing.	2	U2
1(d)	Describe Hit or miss transform.	2	U2
1(e)	Define point detection process.	2	U1
1(f)	What do you mean by Edge detection algorithm?	2	U3
1(g)	Full form of SIFT and define it.	2	U5
1(h)	Define shape numbers.	2	U4
1(i)	What do you mean by Pattern Classes?	2	U5
1(j)	Define Optimum (Bayes) Statistical Classifiers.	2	U5

SECTION B

2(a)	Define digital image. Explain fundamental steps in image processing system with the help of suitable diagram.	10	U1
2(b)	Explain morphological image processing step in detail.	10	U2
2(c)	Describe image segmentation step in detail.	10	U3
2(d)	Explain feature extraction process in detail.	10	U4
2(e)	Define patterns. Also discuss pattern classification by prototype matching.	10	U5

SECTION C

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3(a)	Explain Image acquisition in detail with the help of diagram.	10	U1
3(b)	Differentiate between smoothing and sharpening spatial filters in detail.	10	U1
4(a)	Write short notes on: (i) Erosion (ii). Dilation	10	U2
4(b)	Explain Morphological reconstruction algorithm in detail.	10	U2
5(a)	Differentiate between Segmentation by Region Growing and by Region Splitting in detail.	10	U3
5(b)	Write short notes on: (i). Snakes sets (ii). Level Sets	10	U3
6(a)	Explain Topological and Texture Descriptors in detail.	10	U4
6(b)	Write short notes on: (i). Boundary Preprocessing (ii). Fourier Descriptors	10	U4
7(a)	Differentiate between Multilayer Feed forward neural networks and deep convolutional neural networks in detail.	10	U5
7(b)	Write short notes on: (i). Neural Networks (ii). Deep Learning	10	U5

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