APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Scheme for Valuation/Answer Key

Scheme of evaluation (marks in brackets) and answers of problems/key

SEVENTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

Course Code: CS463

Course Name: DIGITAL IMAGE PROCESSING

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 4 marks.

		Marks
1	Explain Moire patters and aliasing	(4)
2	$\begin{matrix} 32 & -8 & 0 & -8 \\ -8 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ -8 & 0 & 0 & 0 \end{matrix}$	(4)
3	Energy compaction	(4)
4	Explain a) Logarithmic Transformation 2 marks b) Power Law 2 marks	(4)
5	Explain ideal low pass 2 mark high pass filter 2 marks	(4)
6	order statistic filter –Mean mode median,min and max	(4)
7	Explanation for 1) Line edge 2) Ramp edge 2 marks each	(4)
8	Explain Adaptive thresholding – dividing image into blocks and separate thresholding for each block adaptively- Global Thresholding- threshold applied for entire image	(4)
9	Definition i)Closing 2 marks ii)Opening 2 marks	(4)
10	Explain Fourier Descriptor	(4)

PART B

Answer any two full questions, each carries 9 marks.

11	a)	Transform matrix- 1 mark Forward DFT- 2 marks	(5)

Inverse DFT- 2 marks

b) any four properties of 2D Fourier transform (4)

12 a) explain the image formation model.(3) (6)

Explain the significance of sampling and quantization (3)

b) Gamma Ray Imaging- Nuclear Medicine, Astronomical Observations (3)

Microwave Band- Radar

13 a) Explain major components of an image processing system (3) (4)

Figure- 1 mark

b) unitary (5)

PART C

Answer any two full questions,each carries 9 marks.

14 a) Explain homomorphic filtering and steps (5)

b) butterworth low pass 2marks (4)

butterwort high pass filter 2 maeks

15 a) (5)

Gray level	1	2	3	5	6	7
No. of Pixels after equilization	8	10	12	12	16	6

b) Result will be same (4)

16 a) Explain sharpening filters used in spatial domain (5)

b) high boost filtering explanation 2marks (4)

mask used for the filter 2 marks

PART D

Answer any two full questions, each carries 12 marks.

17 a) Opening and closing operation. (6)

b) chain code (6)

18 a) Region splitting and merging algorithm (7)

b) Prewitt, Robert's and Sobel edge (5)

19 a) Describe various thresholding based image segmentation methods.4 marks (8)

Explain any one global threshold detection method 4 marks

b) Explain hit or miss transformation with an example. (4)

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