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Internal Assesment Test - I

Sub:	Digital Image Processing							Code:	10EC763
Date:	21 / 09 / 2017	Duration:	90 mins	Max Marks:	50	Sem:	6th	Branch:	ECE (C)
Answer Any FIVE FULL Questions									

		Marks	OBE	
			CO	RBT
1.	What is a digital image? With block diagram, explain the fundamental steps in digital image processing.	[10]	CO1	L1
2.	With the help of neat block diagram, explain the components of a general purpose image processing system.	[10]	CO1	L1
3.	Explain the importance of brightness adaptation and discrimination in image processing.	[10]	CO1	L1
4.	Write a short note on:		CO1	L1
(a)	Image formation in the eye	[05]		
(b)	Weber Ratio	[05]		

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5.		Explain the process of image acquisition by sensor strips and sensor arrays.	[10]	CO1	L2
6.		What is image sampling and quantization? What are the different parameters which will decide the number of storage bits of the image in discrete domain?	[10]	CO1	L1
7.	(a)	With a suitable diagram, explain how n image is acquired using a circular sensor strip	[06]	CO1	L2
	(b)	Explain image acquisition using micro densitometer.	[04]	CO1	L1
8.	(a)	Explain the process of image acquisition using single sensor.	[06]	CO1	L1
	(b)	Mention the applications of image processing.	[04]	CO1	L1

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7.	(a)	With a suitable diagram, explain how n image is acquired using a circular sensor strip	[06]	CO1	L2
	(b)	Explain image acquisition using micro densitometer.	[04]	CO1	L1
8.	(a)	Explain the process of image acquisition using single sensor.	[06]	CO1	L1
	(b)	Mention the applications of image processing.	[04]	CO1	L1

IAT-1 Solution Scheme.

Digital Signal Processing (10EC763)

1. Definition of image & digital image: 2m
   Block diagram: 4m
   Explanation of each block: 4m

2. Block diagram: 5m
   description of each block: 5m

3. Graph of subjective brightness vs. intensity (log): 2m
   explanation of brightness adaptation: 3m
   explanation for discrimination: 2.5m
   example for discrimination: 2.5m

4. (a) Image formation in the eye.
   Graphical representation (geometry): 2m
   explanation: 3m

   (b) Weber Ration
   definition: 2m
   ~~effect~~ of small & large values of: (1.5 + 1.5)m
   weber ratio

5. Image acquisition by sensor strips:

Figure of line sensor: 1m

Figure of acquisition using linear sensor strip (for 2D image): 1.5m

Explanation: 2.5m

Sensor arrays:

Figure of array sensor: 1m

Example of image acquisition process 2m

Explanation with example: 2m

6. Image sampling & quantization:

Graphical representation: 2m

definitions of sampling & quantization: 2m

Explanation: 2m

Parameters → explanation with equations: 4m
(M, N, k, b, L)

7. (a) Circular sensor strip

Figure: 2m

Explanation: 4m

(b) Microdensitometer explanation with diagram : 2m + 2m

8. (a) Single sensor figure; 2m
explanation with application & example: 2m

(b) Applications of image processing in imaging in EM Spectrum (any 4)
(4m each)