## B.E. Eighth Semester (Computer Technology) (C.B.S.) Elective - IV : Digital Image Processing

P. Pages : 2 Time : Three Hours				s <b>K</b>			KNT/KW/16/7 Max. Marks	<b>NT/KW/16/7607</b> Max. Marks : 80	
	Note	s :	1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	Solve Question 1 OR ( Solve Question 3 OR ( Solve Question 5 OR ( Solve Question 7 OR ( Solve Question 9 OR ( Solve Question 11 OR Due credit will be give Assume suitable data v Illustrate your answers Use of non programma	Questions No. Questions No. Questions No. Questions No. Questions No n to neatness a vhenever nece whenever nece	<ul> <li>2.</li> <li>4.</li> <li>6.</li> <li>8.</li> <li>10.</li> <li>12.</li> <li>and adequate dimensions essary.</li> <li>cessary with the help of response of the second secon</li></ul>	eat sketches.		
1.	a)	Dis	cuss	the fundamental steps i	n digital imag	e processing with block	liagram.	6	
	b)	Exp i) iii)	olain Ad Reg	the following terms related acency	ated to pixels : ii) iv)	Connecting thin Only Boundaries		8	
					0	R			
2.	a)	Exp	olain	the process of zooming	and shrinking	g of digital images.		7	
	b)	Exp	olain	the sampling and quant	ization proces	s used for creating digita	l images.	7	
3.	a)	Wr	ite a	short note on histogram	processing.			6	
	b)	Exp	olain	image enhancement usi	ng arithmetic	/ logic operation. <b>R</b>		7	
4.	a)	Des nois	scribe se.	the order statistics filte	ers for smooth	ening the image corrupte	d with impulse	6	
	b)	Wr	ite a	short notes on Histogram	m Equalization	n.		7	
5.	a)	Wit don	th the nain.	help of block diagram,	, explain the fu	undamental steps for filte	ring in frequency	5	
	b)	Exp	olain	the following terms :				8	
		i)	Bu	ter worth High pass filt	ers.				
		ii)	Ga	ussian High pass filters.					

OR

6.	a)	Explain homomorphic filtering in frequency domain.					
	b)	Explain why the frequency domain processing is preferred for image enhancement.	7				
7.	a)	Write a short notes on lossy compression technique.	6				
	b)	Explain with a neat label diagram the working of an image compression system.	7				
	OR						
8.	a)	Explain the different type of data redundancies used in digital image compression.	7				
	b)	Write a short notes on Huffman coding? Also write disadvantage of Huffman coding?	6				
9.	a)	Explain the algorithm for global thresholding.	7				
	b)	<ul> <li>Explain region based segmentation with respect to the following :</li> <li>i) Basic formulation</li> <li>ii) Region growing</li> </ul>					
		OR ALLOIT					
10.	a)	Differentiate between point detection, Line detection and Edge detection.	6				
	b) Segment the image given below based on threshold estimate using Global thresholding Assuming $\Delta_T = 1$ and select appropriate value of initial threshold T.						
		1 2 5 5					

1	2	5	5
2	3	5	14
2 0	4	15	13
1115	12	13	12

11.	a)	Explain chain codes in details.	5
	b)	Explain skeleton and shape number.	4
	c)	Write short notes on Polygon Approximation.	5
		OR	
12.		Write detailed notes on :	
		a) Topological descriptors.	5

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b	) Fo	purier Descriptors.	4
c	) JP	EG file format.	5

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