BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

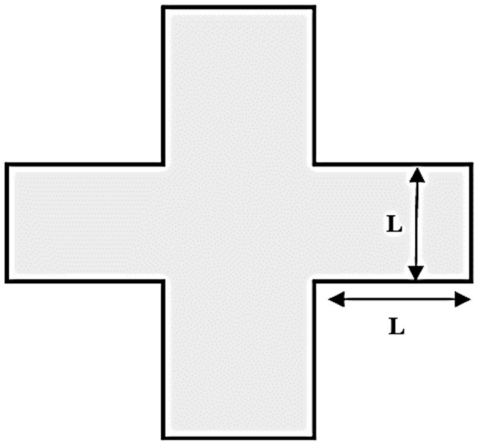
CLASS: BTECH **SEMESTER : VI**
BRANCH: IT **SESSION : SP/2023**

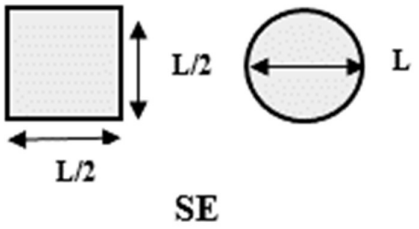
SUBJECT: IT307 IMAGE PROCESSING

TIME: 3 Hours **FULL MARKS: 50**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

			CO	BL
Q.1(a)	Differentiate between the process of smoothening and sharpening in the spatial domain.	[5]	1	BL2
Q.1(b)	What would be the effect on the histogram of an image, if the value of higher-order bit plane is set to zero?	[5]	1	BL1
Q.2(a)	What are the steps involved in the process of filtering in the frequency domain?	[5]	2	BL1
Q.2(b)	Explain the term Sequency with respect to Hadamard transform.	[5]	2	BL2
Q.3(a)	Explain the process of Inverse filtering.	[5]	3	BL2
Q.3(b)	What is the probability density function (PDF) of Gaussian and Rayleigh noise. Which filters can be used for removing Gaussian noise from an image?	[5]	3	BL1
Q.4(a)	Explain the term redundancy in an image and mention its type.	[5]	4	BL2
Q.4(b)	Apply Delta modulation, predictive encoding on the following sequence. Use α=1 and ζ=6.5. 6.8 7.2 7.9 4.2 5.9 7.2 2.2 8.1	[5]	4	BL3
Q.5(a)	What are the visible effects of Opening and Closing operations on an image?	[5]	5	BL1
Q.5(b)	For the given image, perform the following operation, using the given structuring elements (SE), a square shaped SE having sides of L/2 length and a circle with L radius:	[5]	6	BL5





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