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MCA
(SEM III) THEORY EXAMINATION 2024-25
DIGITAL IMAGE PROCESSING

TIME: 3 HRS**M.MARKS: 100**

Note: Attempt all Sections. In case of any missing data; choose suitably.

SECTION A**1. Attempt all questions in brief.****2 x 10 = 20**

Q no.	Question	CO	Level
a.	Define Digital Image.	1	K1
b.	What do you meant by Color model?	1	K1
c.	Write the transfer function for Butterworth filter.	2	K2
d.	Specify the objective of image enhancement technique.	2	K2
e.	Compare Image Enhancement with image restoration?	3	K2
f.	Classify Image restoration techniques.	3	K2
g.	List out Applications of segmentation.	4	K3
h.	What are the two properties that are followed in image segmentation?	4	K3
i.	Show the block diagram of a general compression system model.	5	K2
j.	Define is coding redundancy?	5	K2

SECTION B**2. Attempt any three of the following:****10 x 3 = 30**

Q no.	Question	C O	Level
a.	Explain the fundamental steps in digital image processing.	1	K2
b.	Write short notes on Contrast stretching and Grey level slicing.	2	K3
c.	Explain the image degradation model and its properties.	3	K3
d.	Explain Edge linking and boundary detection in detail.	4	K4
e.	Describe on the Wavelet coding of images.	5	K3

SECTION C**3. Attempt any one part of the following:****10 x 1 = 10**

Q no.	Question	C O	Level
a.	Explain the principle and working of Vidicon digital camera with neat diagram (Image sensing and Acquisition).	1	K2
b.	Write short notes on (i) luminance, (ii) hue or tint, and (iii) saturation, (iv) Brightness (v) Contrast	1	K2

4. Attempt any one part of the following:**10 x 1 = 10**

Q no.	Question	C O	Level
a.	Explain briefly about histogram modelling.	2	K3
b.	Write short notes on histogram specification.	2	K3



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5. Attempt any *one* part of the following: 10 x 1 = 10

Q no.	Question	CO	Level
a.	Write notes on inverse filtering as applied to image restoration.	3	K3
b.	Explain unconstrained restoration and constrained restoration.	3	K3

6. Attempt any *one* part of the following: 10 x 1 = 10

Q no.	Question	CO	Level
a.	Write short notes on Region growing segmentation.	4	K4
b.	Explain in detail about Segmentation by Morphological Watersheds.	4	K4

7. Attempt any *one* part of the following: 10 x 1 = 10

Q no.	Question	CO	Level
a.	Explain compression types.	5	K3
b.	Explain the lossless Bit plane coding or shift coding.	5	K3

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