

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***UG/PG DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2026***Sixth Semester**Biomedical Engineering***BM3652 – MEDICAL IMAGE PROCESSING***Regulations - 2021***Duration : 3 Hrs****Maximum : 100 Marks****PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

Q.No	Questions	BTL	CO	Marks
1.	Distinguish between monochrome and gray scale image.	L2	1	2
2.	State the transform pair equation of 2D DFT.	L2	1	2
3.	How histogram equalization used in image processing.	L1	2	2
4.	Outline the objective of image enhancement technique.	L2	2	2
5.	What is meant by image restoration?	L1	3	2
6.	Mention any two applications of image segmentation.	L2	3	2
7.	What is image Registration?	L1	4	2
8.	Define volume visualization.	L1	4	2
9.	Recall image compression.	L1	5	2
10.	What is segmentation?	L1	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No	Questions	BTL	CO	Marks
11.	a i Explain the various elements of Medical Image processing System.	L2	1	8
	ii Describe how the image is digitized by sampling and quantization.	L2	1	8
	Or			
	b Discuss in detail about Discrete Cosine Transform(DCT) & KL transform	L2	1	16
12.	a Discuss homomorphic filtering to a sample image and explain how each step helps in isolating illumination from reflectance.	L2	2	16
	Or			
	b Explain how you would apply frequency domain filters to perform smoothing and sharpening, and describe the expected effects on the image.	L2	2	16
13.	a Explain in detail about region-based segmentation.	L2	3	16
	Or			
	b Discuss in detail about wiener filtering and inverse filtering.	L2	3	16
14.	a Analyze how orthogonal projection and perspective projection are used in healthcare visualization.	L4	4	16
	Or			
	b Examine the role of multimodal image registration in tracking disease progression. Discuss how misalignment between modalities can influence the outcome of quantitative analysis and clinical interpretation.	L4	4	16

15.	a	Discuss about wavelet transform and explain how the decomposition and reconstruction process contributes to efficient compression without significant loss of image quality.	L2	5	16
Or					
	b	Outline the various performance measures of Computer Aided Diagnosis (CAD) System.	L2	5	16
