NATIONAL INSTITUTE OF TECHNOLGY PATNA

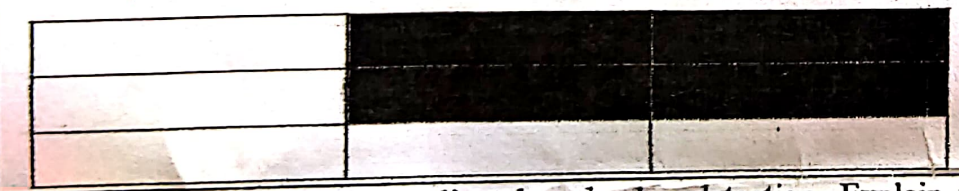
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

MID SEMESTER EXAMINATION – October, 2022

B. Tech (Computer Science and Engineering) 7th Semester

CS7447 – Computer Vision

Full marks:20

Q. no.	Question	Marks	CO	BL
1	Discuss three different categories of image processing operations with suitable examples.	04	CO1	Comprehension
2	Calculate the weights in a Gaussian smoothing kernel that will be used for smoothing the following 3x3 local region of an image. 61 65 62 64 65 63 62 64 61	04	CO1	Application
3	What is the advantage of separable filtering? Determine the horizontal 1D kernel for the following 2D filter kernel: 1/256 4/256 6/256 4/256 1/256 4/256 16/256 24/256 16/256 4/256 6/256 24/256 36/256 24/256 6/256 4/256 16/256 24/256 16/256 4/256 1/256 4/256 6/256 4/256 1/256	04	CO1	Application
4	Write the equation of image gradient. How each component of image gradient is calculated? Show the respective equations. Calculate the gradient orientation for the following 3x3 image patch: 	04	CO2	Knowledge, Application
5	Write the algorithm for gradient based edge detection. Explain the algorithm using a suitable example.	04	CO2	Knowledge, Application