

**PARUL UNIVERSITY**  
**FACULTY OF ENGINEERING & TECHNOLOGY**  
**B.Tech Mid Semester Exam**

Semester: 8th  
 Subject Code: 203122485  
 Subject Name: Vision Systems and Image Processing

Date: 29/01/2024  
 Time: (1hr: 30min)  
 Total Marks: 40

	Marks
<b>Q.1 Attempt all questions</b>	<b>05</b>
(1) What is dynamic range of 4 bit image?	
(2) In human vision systems, what is role of cones?	
(3) What is an image interpolation?	
(4) What is Histogram? What kind of histogram we expect for bright and darker images.	
(5) What do you mean by image enhancement?	
(B) How image is digitized. Explain a simple image formation model with equation.	<b>05</b>
<b>Q.2 Attempt any four(Short Questions)</b>	<b>12</b>
(1) Explain basic elements of computer vision system.	
(2) Explain image smoothing operations?	
(3) Explain contrast stretching.	
(4) Explain image negative in brief.	
(5) Explain log transformation in image.	
<b>Q.3 Attempt any two questions</b>	<b>08</b>
(1) What is sharpening spatial filter, explain various forms of Laplacian masks	
(2) explain histogram equalization in brief	
(3) With respect to radiometric concept, explain radiance , irradiance, radiant intensity, BRDF	
<b>Q.4 (A) Explain roberts, sobel, canny operators with suitable masks</b>	<b>05</b>
<b>(B) Compare spatial resolution and intensity resolution in detail with example.</b>	<b>05</b>
<b>OR</b>	
<b>(B) Explain Pinhole camera with projection geometry</b>	<b>05</b>