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| **Babu Madhav Institute of Information Technology**  **Uka Tarsadia University**  5 years Integrated M.Sc. (IT)/M.Sc.(IT) (Semester 7/1)  IT 7040 – Fundamentals of Digital Image Processing  Practical Internal Exam | | |
| Instruction:  During start of exam you image will be allocated to you for solving below given problems. | | |
| Q: 1 | Convert input image to grayscale, display its histogram, size and identify problems in the image.  Code:  import cv2  from matplotlib import pyplot as plt  import numpy as np  img = cv2.imread("img4.jpg",0)  histogram = cv2.calcHist(img,[0],None,[256],[0,256])  height = img.shape[0]  width = img.shape[1]  plt.plot(histogram)  plt.show()  cv2.imshow("img" , img)  print("height :",height)  print("width :",width)  cv2.waitKey(0)  cv2.distroyAllWindows()  Histogram:    Problems in image:  original image suffaring from low contrast and brightness. | [13] |
| Q:2 | Convert image to size less than 500 Pixels of higher size (max of width/height convert to less than or equal to 500 and proportionally convert other dimension).  Original dimension: [4440\*3333]  Output dimension: [500\*375]  Code:  import cv2  img = cv2.imread("img4.jpg",0)  img2 = cv2.resize(img,(500,375))  cv2.imshow("img2",img2)  cv2.imwrite("new-image.jpg",img2)  cv2.waitKey(0)  cv2.distroyAllWindows() | [02] |
| Q:3 | Suggest solution to improve image and apply it. Justify your solution.  Solution:  contrast streching is a solution for enchance image quality  Code:  import cv2  img = cv2.imread("new-image.jpg",0)  cv2.imshow("new image",img)  cv2.convertScaleAbs(img, 1.5, 10)  cv2.waitKey(0)  Input Image:    Output Image: | [15] |