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| S.  n o | **Roll** | **Name** | **Set assigned** | **S.n o** | **Roll** | **Name** | **Set assigned** |
| 1 | 22ESKCS180 | Ravinandan Verma | I | 35 | 22ESKCS814 | Stuti Agrawal | VIII |
| 2 | 22ESKCS181 | Rikhil Nair | 36 | 22ESKCS815 | Suhani Mehta |
| 3 | 22ESKCS182 | Ritesh Malav | 37 | 22ESKCS816 | Suhani Sharma |
| 4 | 22ESKCS183 | Ritik Doriya | 38 | 22ESKCS817 | Sumit Nagar |
| 5 | 22ESKCS184 | Riyanshi Goyal | 39 | 22ESKCS818 | Sumit Singh |
| 6 | 22ESKCS185 | Rohit Soni | II | 40 | 22ESKCS819 | Tania Devi | IX |
| 7 | 22ESKCS186 | Ronak Nirwan | 41 | 22ESKCS820 | Tanishk Agarwal |
| 8 | 22ESKCS187 | Ruchika Meena | 42 | 22ESKCS821 | Taruna Kumari |
| 9 | 22ESKCS188 | Rudra Vashishtha | 43 | 22ESKCS822 | TUSHAR TAK |
| 10 | 22ESKCS189 | Sachin Gupta | 44 | 22ESKCS823 | Umang Joshi |
| 11 | 22ESKCS190 | Sachin Mishra | III | 45 | 22ESKCS824 | Utkarsh Agarwal | X |
| 12 | 22ESKCS191 | Sagar Agrawal | 46 | 22ESKCS825 | Utkarsh Goyal |
| 13 | 22ESKCS192 | Sahil Singh Rathore | 47 | 22ESKCS826 | Vaibhav Chhipa |
| 14 | 22ESKCS193 | Sakshi Agarwal | 48 | 22ESKCS827 | VAIBHAV SAIN |
| 15 | 22ESKCS194 | Sakshi Bhaskar | 49 | 22ESKCS828 | Vaibhav Saini |
| 16 | 22ESKCS195 | Sanjay Kumawat | IV | 50 | 22ESKCS829 | Vallari Asthana | XI |
| 17 | 22ESKCS196 | Sarthak Nagar | 51 | 22ESKCS830 | Vansh Gupta |
| 18 | 22ESKCS197 | Sarthak Vijayvargiya | 52 | 22ESKCS831 | Vanshika Mathur |
| 19 | 22ESKCS198 | Satish Kumar | 53 | 22ESKCS832 | Vanshita Rajawat |
| 20 | 22ESKCS199 | Satveer Gurjar | 54 | 22ESKCS833 | Vidit Khandelwal |
| 21 | 22ESKCS800 | Satvik Vaishnav | V | 55 | 22ESKCS834 | Vijay Singh | XII |
| 22 | 22ESKCS801 | Satyam Khandelwal | 56 | 22ESKCS835 | Vijay Singh Gurjar |
| 23 | 22ESKCS802 | Sharda Meghwal | 57 | 22ESKCS836 | Vijay Singh Rathore |
| 24 | 22ESKCS803 | Shelja Kanwar | 58 | 22ESKCS837 | Vikas |
| 25 | 22ESKCS804 | Shikha Mahar | VI |  |  |  |  |
| 26 | 22ESKCS805 | Shivam Agrawal |  |  |  |  |
| 27 | 22ESKCS806 | Shivam Bora |  |  |  |  |
| 28 | 22ESKCS807 | Shivam Gupta |  |  |  |  |
| 29 | 22ESKCS808 | Shivang Sharma |  |  |  |  |
| 30 | 22ESKCS809 | Shrey Ghiya |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| 31 | 22ESKCS810 | Shubham Sharma | XII |  |  |  |  |
| 32 | 22ESKCS811 | Shyam Pratap Singh |  |  |  |  |
| 33 | 22ESKCS812 | Siddhi Narban |  |  |  |  |
| 34 | 22ESKCS813 | Snehal Vitthal |  |  |  |  |

**SET- I**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| QN. | Question | BL | CO | MM |
| Q1. | In an image acquisition process, if the image sensor has a limited resolution, how does that  impact the quality of the final digital image? | 2 | 1 | 10 |
| Q2. | Illustrate the factors that should be considered while selecting an appropriate device for capturing an image in terms of resolution and color accuracy? | 3 | 1 | 10 |
| Q3. | When rotating an image by a non-multiple of 90 degrees, how can you prevent pixel  information from being lost at the edges of the image? | 2 | 2 | 10 |
| Q4. | If an image is rotated by 45 degrees, identify the changes happen to the size of the image, and  how would you handle resizing to retain the entire content? | 2 | 2 | 10 |

**SET- II**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| QN. | Question | BL | CO | MM |
| Q1. | When performing noise reduction on an image, how does the choice of filtering technique (e.g., median vs. Gaussian) affect the resulting image quality? | 2 | 1 | 10 |
| Q2. | If the original image has a lot of low-contrast areas, what preprocessing techniques could you  apply to enhance visibility before further processing? | 3 | 1 | 10 |
| Q3. | How does the interpolation method used in image scaling (e.g., nearest neighbor, bilinear)  affect the smoothness and quality of the scaled image? | 2 | 2 | 10 |
| Q4. | If you need to scale an image down for a web application, what considerations should you make to ensure the image remains visually appealing and retains detail? | 2 | 2 | 10 |

**SET- III**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| QN. | Question | BL | CO | MM |
| Q1. | You need to enhance the contrast in a medical X-ray image; what enhancement technique would you apply, and why? | 2 | 1 | 10 |
| Q2. | How would you handle an image that appears too bright due to overexposure in terms of  histogram equalization? | 3 | 1 | 10 |
| Q3. | When translating (shifting) an image by a certain amount, how does the process impact the  edges of the image, and what methods can you use to fill the empty areas? | 2 | 2 | 10 |
| Q4. | How does translation differ from other transformations like rotation and scaling in terms of how it affects pixel positions in an image? | 2 | 2 | 10 |

**SET- IV**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| QN. | Question | BL | CO | MM |
| Q1. | Describe the significance of thresholding in segmentation, and how does changing the threshold value affect the segmented image? | 2 | 1 | 10 |
| Q2. | In medical imaging, why might you choose region-growing segmentation over edge-detection methods for identifying tumors? | 3 | 1 | 10 |
| Q3. | What is the role of affine transformation in image processing, and how does it preserve the geometric properties of an image? | 2 | 2 | 10 |
| Q4. | How would you apply a shear transformation to an image, and what kind of changes would you expect to see in the image’s structure? | 2 | 2 | 10 |

**SET- V**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| QN. | Question | BL | CO | MM |
| Q1. | If you need to rotate an image, how would you prevent it from becoming distorted during the process, and what transformation matrix would you use? | 2 | 1 | 10 |
| Q2. | When performing a Fourier transform on an image, how does it help in filtering out noise or  extracting features from the image? | 3 | 1 | 10 |
| Q3. | How does perspective transformation affect the geometry of an image, and in what types of  applications is it commonly used (e.g., in augmented reality)? | 2 | 2 | 10 |
| Q4. | In applying a perspective transformation, what are the challenges of handling non-parallel  lines, and how can they be corrected for accurate mapping? | 2 | 2 | 10 |

**SET- VI**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| QN. | Question | BL | CO | MM |
| Q1. | How do lossy and lossless image compression techniques differ, and when would you prefer one over the other? | 2 | 1 | 10 |
| Q2. | How does the choice of compression algorithm (e.g., JPEG vs. PNG) influence the quality  and file size of an image? | 3 | 1 | 10 |
| Q3. | How does applying a Gaussian filter to an image help reduce noise, and what effect does it  have on image sharpness? | 2 | 2 | 10 |
| Q4. | What is the difference between a low-pass and a high-pass filter, and how would each affect an image when applied during filtering? | 2 | 2 | 10 |

**SET- VII**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| QN. | Question | BL | CO | MM |
| Q1. | When using edge detection to extract features from an image, how do the choice of  edge-detection operator (like Sobel or Canny) impact the results? | 2 | 1 | 10 |
| Q2. | Illustrate the steps would you take to extract and match key features from an image for object  recognition purposes? | 3 | 1 | 10 |
| Q3. | How does convolution with a kernel function like the Sobel filter help in detecting edges, and what happens if the kernel is too large? | 2 | 2 | 10 |
| Q4. | When applying convolution to an image, how does the choice of kernel size influence the  results, particularly in terms of detail preservation? | 2 | 2 | 10 |

**SET- VIII**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| QN. | Question | BL | CO | MM |
| Q1. | If you need to clean up small noise in a binary image, what morphological operation would you apply, and why? | 2 | 1 | 10 |
| Q2. | How would the application of dilation and erosion operations affect the structure of an object  in a binary image? | 3 | 1 | 10 |
| Q3. | How does applying a filter in the frequency domain (using Fourier transform) differ from spatial domain filtering, and in which scenarios is it preferred? | 2 | 2 | 10 |
| Q4. | When filtering in the frequency domain to remove noise, how would you design a low-pass filter to target high-frequency noise components? | 2 | 2 | 10 |

**SET- IX**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| QN. | Question | BL | CO | MM |
| Q1. | In medical imaging, how does image registration help when combining images from different modalities (e.g., CT and MRI)? | 2 | 1 | 10 |
| Q2. | Discuss the challenges associated with registering images that have varying levels of scale or  rotation? | 3 | 1 | 10 |
| Q3. | What type of noise does median filtering effectively reduce, and why is it more suitable than Gaussian filtering for removing salt-and-pepper noise? | 2 | 2 | 10 |
| Q4. | How does the size of the median filter window affect the smoothness of the resulting image, and what trade-offs might arise from increasing the window size? | 2 | 2 | 10 |

**SET- X**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| QN. | Question | BL | CO | MM |
| Q1. | How does the conversion from RGB to HSV color space help in image processing tasks such as segmentation or object tracking? | 2 | 1 | 10 |
| Q2. | If you need to enhance an image’s color saturation, what transformation or algorithm would  you apply, and how does it affect the image? | 3 | 1 | 10 |
| Q3. | How does the Canny edge detector differ from Sobel edge detection in terms of noise  sensitivity and accuracy in detecting edges? | 2 | 2 | 10 |
| Q4. | What steps should be followed when applying edge detection to an image to ensure accurate and reliable results in noisy environments? | 2 | 2 | 10 |

**SET- XI**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| QN. | Question | BL | CO | MM |
| Q1. | When reconstructing an image from projections in techniques like tomography, what role  does interpolation play in improving image quality? | 2 | 1 | 10 |
| Q2. | Discuss the challenges that might arise when reconstructing a high-resolution 3D image from  multiple 2D slices? | 3 | 1 | 10 |
| Q3. | How does applying a moving average filter (box filter) smooth an image, and what drawbacks does it have compared to more advanced filters like Gaussian filters? | 2 | 2 | 10 |
| Q4. | In what cases would you choose to apply image smoothing, and how can the kernel size  affect the level of smoothness and detail in the image? | 2 | 2 | 10 |

**SET- XII**

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| --- | --- | --- | --- | --- |
| QN. | Question | BL | CO | MM |
| Q1. | How does machine learning assist in object recognition, and what types of algorithms would be used to classify objects in an image? | 2 | 1 | 10 |
| Q2. | In a Set where object recognition fails due to poor lighting conditions, what preprocessing or image enhancement strategies could be employed to improve accuracy? | 3 | 1 | 10 |
| Q3. | How does the unsharp mask technique work to sharpen an image, and how can you control the amount of sharpening applied? | 2 | 2 | 10 |
| Q4. | What issues can arise when sharpening an image with a high-pass filter, and how might it lead to the enhancement of unwanted noise? | 2 | 2 | 10 |