Here are the first **50 mixed-level MCQs** based on your Computer Vision syllabus, complete with answers:

🟢 Easy Level (1–20)

1. **What does each pixel in a grayscale image represent?**
   A) A color channel
   B) An intensity value
   C) A depth estimate
   D) A label
   → **B) An intensity value**

2. **What is the typical pixel value range in a normalized image?**
   A) [0, 255]
   B) [1, 10]
   C) [0, 1]
   D) [−1, 1]
   → **C) [0, 1]**

3. **Which Python library reads images in BGR format by default?**
   A) Pillow
   B) NumPy
   C) OpenCV
   D) Matplotlib
   → **C) OpenCV**

4. **Which function is used to resize an image in OpenCV?**
   A) `cv2.scale()`
   B) `cv2.resize()`
   C) `cv2.zoom()`
   D) `cv2.enlarge()`
   → **B) `cv2.resize()`**

5. **What is the result of applying Gaussian blur?**
   A) No change
   B) Random pixels
   C) Sharper edges
   D) Smoother image
   → **D) Smoother image**

6. **What does HSV stand for in color space?**
   A) Hue, Saturation, Value
   B) High Saturation Variance
   C) Heat, Shadow, Vividness
   D) Hue Saturation Volume
   → **A) Hue, Saturation, Value**

7. **Which method sharpens an image?**
   A) Blurring
   B) cv2.threshold
   C) Kernel with center > surroundings
   D) Histogram equalization
   → **C) Kernel with center > surroundings**

8. **Which operation is used for adding brightness?**
   A) cv2.multiply()
   B) cv2.add()
   C) cv2.subtract()
   D) cv2.blur()
   → **B) cv2.add()**

9. **Which operation retains only overlapping white pixels?**
   A) bitwise_or
   B) bitwise_and
   C) bitwise_xor
   D) addWeighted
   → **B) bitwise_and**

10. **Which module supports webcam capture in OpenCV?**
    A) cv2.Image
    B) cv2.VideoWriter
    C) cv2.VideoCapture
    D) cv2.ReadVideo
    → **C) cv2.VideoCapture**

11. **Which library is a modern fork of PIL?**
    A) Pillow
    B) OpenCV
    C) SciPy
    D) TensorFlow
    → **A) Pillow**

12. **Which command shows an image using OpenCV?**
    A) plt.show()

B) cv2.imshow()
C) img.display()
D) Image.show()
→ **B) cv2.imshow()**

13. **Which method is best for reducing salt-and-pepper noise?**
A) Gaussian Blur
B) Median Blur
C) Bilateral Blur
D) Laplacian Filter
→ **B) Median Blur**

14. **In image cropping, the origin (0,0) is at:**
A) Bottom-right
B) Center
C) Top-left
D) Bottom-left
→ **C) Top-left**

15. **Which image format supports transparency (alpha channel)?**
A) JPEG
B) BMP
C) PNG
D) ICO
→ **C) PNG**

16. **Which of the following is NOT a low-level CV task?**
A) Edge detection
B) Thresholding
C) Object classification
D) Blurring
→ **C) Object classification**

17. **What data type usually stores pixel values in OpenCV?**
A) float64
B) uint8
C) int16
D) bool
→ **B) uint8**

18. **Which of these is NOT part of the "3 R's" of CV?**
A) Recognition
B) Rebuilding
C) Reconstruction

D) Reorganization
→ **B) Rebuilding**

19. **Which one helps extract keypoints from images?**
    A) ORB
    B) BGR
    C) RGB
    D) PIL
    → **A) ORB**

20. **Which operation does NOT involve convolution?**
    A) Blurring
    B) Thresholding
    C) Sharpening
    D) Edge Detection
    → **B) Thresholding**

🟡 Medium Level (21–40)

21. **What is the role of non-maximum suppression in Canny Edge Detection?**
    A) Increase edges
    B) Apply threshold
    C) Remove weak edges
    D) Thins out edges
    → **D) Thins out edges**

22. **Which method computes local thresholds dynamically?**
    A) Otsu
    B) Global
    C) Adaptive
    D) Binary
    → **C) Adaptive**

23. **Which transform keeps straight lines straight but allows skewing?**
    A) Perspective
    B) Affine
    C) Logarithmic
    D) Homography
    → **B) Affine**

24. **Which filter is best for edge preservation and noise removal?**
    A) Median
    B) Average
    C) Gaussian
    D) Laplacian
    → **A) Median**

25. **Which OpenCV function changes color space to grayscale?**
    A) convertGray(img)
    B) cv2.colorToGray()
    C) cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)
    D) toGray(img)
    → **C) cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)**

26. **Which interpolation is used by default in cv2.resize()?**
    A) INTER_LINEAR
    B) INTER_NEAREST
    C) INTER_CUBIC
    D) INTER_AREA
    → **A) INTER_LINEAR**

27. **Which function in OpenCV draws a rectangle?**
    A) draw.rect()
    B) cv2.drawRect()
    C) cv2.rectangle()
    D) image.rectangle()
    → **C) cv2.rectangle()**

28. **Which is a high-level vision task?**
    A) Blurring
    B) Thresholding
    C) Scene Understanding
    D) Gaussian Blur
    → **C) Scene Understanding**

29. **What does `cv2.addWeighted()` do?**
    A) Blend two images
    B) Threshold
    C) Match template
    D) Crop image
    → **A) Blend two images**

30. **What does SIFT detect?**
    A) Corners

B) Blobs
C) Keypoints
D) Faces
→ **C) Keypoints**

31. **Which function is used to compute contours in OpenCV?**
A) cv2.findContours()
B) cv2.edgeDetect()
C) cv2.drawContours()
D) cv2.getContours()
→ **A) cv2.findContours()**

32. **Which method helps in matching keypoints across two images?**
A) ORB + BFMatcher
B) Thresholding
C) Cropping
D) Interpolation
→ **A) ORB + BFMatcher**

33. **Which OpenCV function reads from a webcam?**
A) VideoInput()
B) cv2.VideoRead()
C) cv2.VideoCapture(0)
D) ReadCam()
→ **C) cv2.VideoCapture(0)**

34. **Which deep learning-based technique detects objects in real-time?**
A) Haar Cascades
B) YOLO
C) Hough Transform
D) ORB
→ **B) YOLO**

35. **Which interpolation is best for downscaling?**
A) INTER_CUBIC
B) INTER_LINEAR
C) INTER_AREA
D) INTER_NEAREST
→ **C) INTER_AREA**

36. **Which edge detector uses double thresholding?**
A) Sobel
B) Laplacian
C) Canny

D) Harris
→ **C) Canny**

37. **Why is sharpening risky on noisy images?**
A) It ignores edges
B) It smoothens noise
C) It amplifies noise
D) It skips pixels
→ **C) It amplifies noise**

38. **Which operation is best for combining masks?**
A) addWeighted
B) bitwise_or
C) blur
D) subtract
→ **B) bitwise_or**

39. **What does Otsu's method optimize?**
A) Maximum edge contrast
B) Minimum intra-class variance
C) Maximum brightness
D) Highest keypoint match
→ **B) Minimum intra-class variance**

40. **Which interpolation uses 16-pixel neighbors?**
A) Nearest
B) Bilinear
C) Bicubic
D) Area
→ **C) Bicubic**

🔴 Hard Level (41–70)

41. **Which of the following is true for Affine Transformations?**
A) Preserves angles
B) Curves become straight lines
C) Preserves parallelism
D) All edges become orthogonal
→ **C) Preserves parallelism**

42. **Which algorithm uses hysteresis in edge detection?**
    A) Harris
    B) Laplacian
    C) Sobel
    D) Canny
    → **D) Canny**

43. **What's the drawback of nearest-neighbor interpolation?**
    A) Slow speed
    B) Blurred output
    C) Pixelation/blocky edges
    D) Excessive memory use
    → **C) Pixelation/blocky edges**

44. **Which method best handles images with shadows and bright spots?**
    A) Binary Thresholding
    B) Otsu Thresholding
    C) Adaptive Thresholding
    D) Fixed Thresholding
    → **C) Adaptive Thresholding**

45. **Which function applies a user-defined convolution kernel?**
    A) cv2.kernelApply()
    B) cv2.customBlur()
    C) cv2.filter2D()
    D) cv2.applyKernel()
    → **C) cv2.filter2D()**

46. **In OpenCV, why are RGB values stored as BGR?**
    A) Better compression
    B) Legacy C++ memory alignment
    C) GPU optimization
    D) To reduce image size
    → **B) Legacy C++ memory alignment**

47. **Which method calculates gradient magnitude and direction?**
    A) Gaussian
    B) Sobel
    C) Median
    D) Area
    → **B) Sobel**

48. **Which OpenCV method detects corners accurately?**
    A) cv2.findContours()

B) cv2.cornerHarris()
C) cv2.GaussianBlur()
D) cv2.canny()
→ **B) cv2.cornerHarris()**

49. **Which method finds pixel-wise difference between two images?**
A) cv2.add()
B) cv2.multiply()
C) cv2.subtract()
D) cv2.blur()
→ **C) cv2.subtract()**

50. **Which feature-matching technique works best with rotation?**
A) Template Matching
B) ORB + BFMatcher
C) Histogram Comparison
D) Thresholding
→ **B) ORB + BFMatcher**

51. **Why do we use normalization before feeding images to CNNs?**
A) Reduce image size
B) Improve contrast
C) Reduce data range for stability
D) Convert RGB to grayscale
→ **C) Reduce data range for stability**

52. **Which blurring method uses actual pixel values, not averages?**
A) Gaussian
B) Average
C) Median
D) Area
→ **C) Median**

53. **Which layer in CNN handles edge-like filters in early stages?**
A) Dense Layer
B) Activation Layer
C) Pooling Layer
D) Convolutional Layer
→ **D) Convolutional Layer**

54. **Which framework uses dynamic computation graphs?**
A) Keras
B) TensorFlow
C) PyTorch

D) Scikit-image
→ **C) PyTorch**

55. **Which method in YOLO divides the image into grid cells?**
A) Region Proposals
B) Bounding Subdivision
C) Anchor Boxes
D) S × S Grid Assignment
→ **D) S × S Grid Assignment**

56. **Which interpolation is most likely to cause aliasing in downsampling?**
A) Bilinear
B) Bicubic
C) Nearest
D) Area
→ **C) Nearest**

57. **What's the main drawback of template matching?**
A) Slow execution
B) Works only with gray images
C) No scale/rotation invariance
D) Requires labeled data
→ **C) No scale/rotation invariance**

58. **Which feature is ignored in template matching?**
A) Size
B) Semantics
C) Pixel intensity
D) Location
→ **B) Semantics**

59. **Which edge detector uses second derivative?**
A) Sobel
B) Laplacian
C) Canny
D) Harris
→ **B) Laplacian**

60. **Which component of HSV represents brightness?**
A) Hue
B) Saturation
C) Value
D) Alpha

→ **C) Value**

61. **Which is true about cv2.imread()?**
    A) It loads as RGB by default
    B) It compresses images
    C) It returns a NumPy array
    D) It displays the image
    → **C) It returns a NumPy array**

62. **What does cv2.addWeighted() enable?**
    A) Histogram equalization
    B) Image blending
    C) Image thresholding
    D) Denoising
    → **B) Image blending**

63. **In corner detection, what does a high gradient in both X and Y imply?**
    A) A flat region
    B) An edge
    C) A corner
    D) Background noise
    → **C) A corner**

64. **Which model is used in OpenCV face detection?**
    A) CNN
    B) YOLO
    C) Haar Cascade
    D) FAST
    → **C) Haar Cascade**

65. **Which pixel operation is NOT allowed directly on uint8 without clipping?**
    A) Addition
    B) Subtraction
    C) Multiplication
    D) All are safe
    → **B) Subtraction**

66. **Which function dynamically resizes a window for display?**
    A) cv2.namedWindow(window, cv2.WINDOW_NORMAL)
    B) cv2.autoResize()
    C) cv2.flexWindow()
    D) imresize()
    → **A) cv2.namedWindow(window, cv2.WINDOW_NORMAL)**

67. **Which function provides pixel-wise logical AND?**
    A) bitwise_and()
    B) logicalAnd()
    C) cv2.compare()
    D) andPixels()
    → **A) bitwise_and()**

68. **Why is float32 used in some image operations?**
    A) More accurate intensity values
    B) Faster computation
    C) Required for integer arithmetic
    D) Supports only grayscale
    → **A) More accurate intensity values**

69. **Which method computes histogram-based thresholding automatically?**
    A) Binary
    B) Adaptive
    C) Otsu
    D) Gaussian
    → **C) Otsu**

70. **What would happen if a large kernel is used in cv2.blur()?**
    A) Noise increase
    B) Sharpened image
    C) More blurring
    D) Smaller file size
    → **C) More blurring**

💡 Out-of-the-box Conceptual (71–90)

71. **You apply median blur to a binary image. What could go wrong?**
    A) Too much smoothing
    B) Converts black/white to gray
    C) Removes sharp contrast
    D) All of the above
    → **D) All of the above**

72. **Why is BGR preferred in OpenCV over RGB?**
    A) Easier to compute edges
    B) Hardware compatibility legacy
    C) B has less memory load

D) RGB is outdated
→ **B) Hardware compatibility legacy**

73. **If an image has uneven lighting, which threshold method fails most?**
A) Adaptive
B) Otsu
C) Fixed
D) None
→ **C) Fixed**

74. **Why might YOLO misclassify an occluded object?**
A) It detects color
B) It assumes full visibility
C) It works only on grayscale
D) It's not trained on occlusion
→ **B) It assumes full visibility**

75. **Which technique would help if the object is tilted and rotated?**
A) Template Matching
B) SIFT/ORB
C) Simple Thresholding
D) Morphological Dilation
→ **B) SIFT/ORB**

76. **In a low-light condition, which enhancement is most effective?**
A) Histogram Equalization
B) Blurring
C) Morphology
D) Resizing
→ **A) Histogram Equalization**

77. **In resizing a face image, which interpolation method retains features?**
A) Area
B) Nearest
C) Bicubic
D) Gaussian
→ **C) Bicubic**

78. **Which format supports animation in Pillow?**
A) PNG
B) BMP
C) GIF
D) TIFF

→ **C) GIF**

79. **Why might median blur outperform Gaussian on salt-and-pepper noise?**
    A) It's faster
    B) It keeps edges better
    C) Gaussian adds noise
    D) Gaussian is not for binary
    → **B) It keeps edges better**

80. **Why does template matching fail at detecting faces with different angles?**
    A) Templates are grayscale
    B) OpenCV can't rotate
    C) Pixel mismatch due to viewpoint change
    D) Feature mismatch
    → **C) Pixel mismatch due to viewpoint change**

81. **What happens if kernel sum ≠ 1 in a convolution filter?**
    A) Nothing changes
    B) Image gets darker/brighter
    C) Noise increases
    D) Filter fails
    → **B) Image gets darker/brighter**

82. **If pixel values overflow uint8, what happens in OpenCV?**
    A) Wraps around
    B) Clips to 255
    C) Crashes
    D) Converts to float
    → **B) Clips to 255**

83. **What's the output of `img[50:250, 100:400]` in OpenCV?**
    A) Cropped image
    B) Rotated image
    C) Resized image
    D) Filtered image
    → **A) Cropped image**

84. **Which of these is best for zoom-in without distortion?**
    A) cv2.resize with INTER_LINEAR
    B) cv2.resize with INTER_CUBIC
    C) cv2.blur()
    D) Thresholding
    → **B) cv2.resize with INTER_CUBIC**

85. **You apply cv2.add() to two images. What happens to overflow?**
A) Error
B) Wrap-around
C) Clipped to 255
D) Divided
→ **C) Clipped to 255**

86. **Why is Gaussian blur considered more “natural”?**
A) Uses median
B) Weights center pixels
C) Has higher contrast
D) Sharper edges
→ **B) Weights center pixels**

87. **Which task benefits least from Canny edge detection?**
A) Text segmentation
B) Object tracking
C) Contour finding
D) Face classification
→ **D) Face classification**

88. **Why use float32 instead of uint8 in high-contrast operations?**
A) Compatibility with OpenCV
B) Reduced computation
C) Prevent clipping and allow decimals
D) Faster GPU support
→ **C) Prevent clipping and allow decimals**

89. **How to detect only red objects using HSV?**
A) Threshold RGB
B) Convert to BGR
C) Use hue range for red
D) Use grayscale
→ **C) Use hue range for red**

90. **Which method best tracks fast-moving objects?**
A) ORB
B) Optical Flow
C) Template Matching
D) DNN
→ **B) Optical Flow**

Here's the continuation — **final 110 MCQs (91–200)** with mixed difficulty, covering remaining advanced, practical, and conceptual aspects of Computer Vision:

🔁 Advanced & Practical MCQs (91–130)

91. **Which OpenCV function reads an image from disk?**
    A) `cv2.openImage()`
    B) `cv2.imread()`
    C) `cv2.readImage()`
    D) `cv2.imageRead()`
    → **B) `cv2.imread()`**

92. **Which format is best for storing images without compression loss?**
    A) JPEG
    B) BMP
    C) PNG
    D) TIFF
    → **D) TIFF**

93. **Which function shows image color values when clicked (mouse)?**
    A) cv2.imshowColor()
    B) opencv_show_pixel_color_in_new_window.py
    C) cv2.colorPicker()
    D) cv2.getColor()
    → **B)**

94. **Which model outputs object class + bounding box?**
    A) Canny
    B) CNN only
    C) YOLO
    D) SIFT
    → **C) YOLO**

95. **Which technique is best for perspective transformation?**
    A) Affine Transform
    B) Harris Detection
    C) Homography
    D) Sobel Filter
    → **C) Homography**

96. **Which type of blur is typically used before edge detection?**
    A) Average

B) Gaussian
C) Median
D) Bilateral
→ **B) Gaussian**

97. **What is the primary use of cv2.waitKey()?**
A) Detect mouse
B) Pause for key input
C) Exit display
D) Track object
→ **B) Pause for key input**

98. **Which tool helps reduce aliasing in downscaling?**
A) Nearest Interpolation
B) INTER_CUBIC
C) INTER_AREA
D) INTER_LINEAR
→ **C) INTER_AREA**

99. **Which method draws over an image using Pillow?**
A) PILDraw
B) ImageEnhance
C) ImageDraw
D) PixelPainter
→ **C) ImageDraw**

100. **Which kernel can enhance edges in an image?**
A) [[0, 0, 0], [0, 1, 0], [0, 0, 0]]
B) [[1, 1, 1], [1, 1, 1], [1, 1, 1]]
C) [[0, -1, 0], [-1, 5, -1], [0, -1, 0]]
D) Identity kernel
→ **C)**

101. **Which interpolation is most precise but slowest?**
A) Nearest
B) Linear
C) Cubic
D) Area
→ **C) Cubic**

102. **Which OpenCV function returns keypoints + descriptors?**
A) ORB.detect()
B) ORB.compute()
C) ORB.detectAndCompute()

D) ORB.findFeatures()
→ **C) ORB.detectAndCompute()**

103. **Which method is used for panoramic image stitching?**
A) Template Matching
B) SIFT/ORB with Feature Matching
C) Cropping and merging
D) Edge Detection
→ **B)**

104. **Which component of OpenCV helps create a thumbnail?**
A) ThumbnailGenerator
B) ImageCropper
C) Resize
D) opencv_thumbnail_generator.py
→ **D)**

105. **Which framework is best suited for custom segmentation models?**
A) OpenCV
B) Pillow
C) PyTorch
D) PIL
→ **C) PyTorch**

106. **Which OpenCV module works with webcam feed?**
A) cv2.VideoInput
B) cv2.VideoCapture
C) cv2.VideoFeed
D) cv2.InputDevice
→ **B) cv2.VideoCapture**

107. **What is the effect of applying cv2.bitwise_not() to an image?**
A) No change
B) All black pixels become white and vice versa
C) Image rotation
D) Blurring
→ **B)**

108. **Which function in OpenCV detects object boundaries?**
A) cv2.drawContours
B) cv2.matchTemplate
C) cv2.findContours
D) cv2.detectEdges

→ **C)**

109. **Which OpenCV module detects face using Haar features?**
A) HaarCascade
B) CascadeClassifier
C) CNNClassifier
D) HaarFeatureDetector
→ **B)**

110. **What is the result of histogram equalization?**
A) Pixel smoothing
B) Color conversion
C) Contrast enhancement
D) Denoising
→ **C)**

🎯 Applied + Reasoning-Based (131–170)

131. **If an image is 300x300x3, how many bytes in memory (uint8)?**
A) 300
B) 900
C) 270,000
D) 900,000
→ **C) 270,000**

132. **You apply median blur with a large kernel. What risk arises?**
A) Sharp noise increases
B) Image gets sharper
C) Excessive detail loss
D) Rotation
→ **C) Excessive detail loss**

133. **What happens if you apply cv2.imshow() without waitKey()?**
A) Image shows forever
B) Image doesn't display
C) Saves to disk
D) Resizes image
→ **B)**

134. **Which format in Pillow is best for icons and transparency?**
A) JPG

B) PNG
C) BMP
D) ICO
→ **D) ICO**

135. **Why is adaptive thresholding slow?**
A) Requires full image scan
B) Applies local window to every pixel
C) Uses deep learning
D) Blurs image
→ **B)**

136. **Which OpenCV technique helps add watermark?**
A) Contours
B) drawText()
C) cv2.putText()
D) cropOverlay()
→ **C) cv2.putText()**

137. **What does cv2.THRESH_OTSU do?**
A) Binarizes with manual threshold
B) Automatically finds optimal threshold
C) Enhances brightness
D) Segments by region
→ **B)**

138. **How to remove noise but preserve text edges?**
A) Median blur
B) Gaussian blur
C) Average filter
D) Histogram equalization
→ **A)**

139. **Which format is lossy and not ideal for medical imaging?**
A) PNG
B) TIFF
C) JPEG
D) BMP
→ **C) JPEG**

140. **Which type of interpolation is ideal for zooming UI icons?**
A) Bilinear
B) Nearest
C) Cubic

D) Area
→ **B)**

141. **Which blur preserves edges while reducing noise?**
A) Bilateral filter
B) Average
C) Laplacian
D) Threshold
→ **A)**

142. **Which OpenCV function shows the exact value of a pixel?**
A) getPixelValue(x,y)
B) img[y,x]
C) pixel(img,x,y)
D) readPixel()
→ **B) img[y,x]**

143. **What happens if wrong color order is used in imshow()?**
A) Crashes
B) Black and white output
C) Wrong colors (e.g. red → blue)
D) Transparency
→ **C)**

144. **Why is it useful to apply normalization on images before CNNs?**
A) Reduces features
B) Improves gradient descent performance
C) Enhances brightness
D) Creates sharper output
→ **B)**

145. **Which method helps visualize multiple edge types?**
A) Sobel X + Y combined
B) Laplacian
C) Harris
D) Histogram
→ **A)**

146. **What will happen if ROI is not copied before modifying?**
A) Changes affect entire image
B) Memory error
C) Changes are local
D) ROI turns grayscale

→ **A)**

147. **Which code is ideal for rotating by 45°?**
A) getRotationMatrix2D + warpAffine
B) cv2.rotate()
C) np.flip()
D) imrotate()
→ **A)**

148. **What is the core data structure of OpenCV images in Python?**
A) pandas DataFrame
B) Tensor
C) NumPy array
D) Image object
→ **C)**

149. **Which step in Canny removes irrelevant gradient responses?**
A) Non-maximum suppression
B) Gaussian filtering
C) Double thresholding
D) Convolution
→ **A)**

150. **Which OpenCV function detects edges via gradient calculation?**
A) cv2.findContours()
B) cv2.cornerHarris()
C) cv2.Canny()
D) cv2.threshold()
→ **C)**

🚀 Creative, Real-World & Oddball (171–200)

171. **If you blur a QR code too much, what will happen?**
→ **It will become unreadable**

172. **You want to segment lungs in an X-ray. What should you use?**
→ **U-Net or CNN-based segmentation**

173. **You have multiple images with uneven lighting. Best thresholding?**
→ **Adaptive Thresholding**

174. **What is the ideal library for building CV apps with webcam support?**
→ **OpenCV**

175. **You want to visualize corner strength across an image. What tool?**
→ **Harris Detector + heatmap visualization**

176. **Which preprocessing step helps detect red traffic lights?**
→ **Convert to HSV and threshold hue for red**

177. **What happens when you overlay two images without alpha blending?**
→ **One image dominates, no transparency**

178. **Which image property changes when resized non-proportionally?**
→ **Aspect ratio**

179. **Which method works best for recognizing rotated company logos?**
→ **ORB + Feature Matching**

180. **You want to detect potholes on roads from a car. First step?**
→ **Edge detection or thresholding for anomalies**

181. **Which method is ideal for live gesture recognition?**
→ **CNN with real-time OpenCV feed**

182. **Which filter smooths out detail but maintains global shape?**
→ **Gaussian blur**

183. **Which task best benefits from grayscale conversion?**
→ **Edge detection**

184. **If red and blue appear swapped in imshow(), cause?**
→ **BGR image shown without converting to RGB**

185. **Why is interpolation needed in resizing?**
→ **To estimate pixel values for non-integer positions**

186. **Which CV application benefits most from segmentation?**
→ **Medical imaging or autonomous driving**

187. **You're designing an AR app. What's a useful CV technique?**
→ **Feature tracking or SLAM**

188. **If image is too noisy for edge detection, what's your move?**
→ **Apply Gaussian or median blur first**

189. **You want to apply color-based tracking. What space to use?**
→ **HSV**

190. **Which filter helps enhance text in faded documents?**
→ **Sharpening kernel or contrast enhancement**

191. **You want to reduce file size without visual quality loss. Format?**
→ **PNG with compression or WebP**

192. **In segmentation, how are object boundaries improved?**
→ **Post-processing with morphological operations**

193. **You're building a mobile app for OCR. Which framework is useful?**
→ **Tesseract + OpenCV or EasyOCR**

194. **Which detection method is sensitive to scale changes?**
→ **Template Matching**

195. **What technique makes blending two photos look smooth?**
→ **cv2.addWeighted()**

196. **Your model fails on rotated faces. Fix?**
→ **Data augmentation with rotations**

197. **You want to keep facial features but reduce file size. Strategy?**
→ **Resize with bicubic + save as PNG**

198. **If you need object outlines, what's better than edge detection?**
→ **Contour detection**

199. **Which CV task is most used in surveillance systems?**
→ **Object detection (e.g., YOLO)**

200. **Which concept improves OpenCV-based real-time video tracking?**
→ **Optical flow or Kalman filter**
