1. What is Computer Vision and Image Processing (CVIP)?

a) A branch of computer science that focuses on understanding and processing visual data.
b) A technique for enhancing images using digital algorithms.
c) A method for printing images on a computer screen.
d) A software tool for organizing image files.

Answer: a) A branch of computer science that focuses on understanding and processing visual data.
Explanation: CVIP involves developing algorithms to interpret and process visual information from the real world, such as images or videos, using computers.

2. When did the field of Computer Vision and Image Processing (CVIP) emerge?

a) 1980s
b) 1950s
c) 2000s
d) 1970s

Answer: b) 1950s
Explanation: The field of CVIP emerged in the 1950s, with early research focused on understanding and processing visual data.

3. Which of the following is NOT an evolution of CVIP?

a) Integration of deep learning techniques
b) Advancements in hardware technology
c) Use of traditional image processing algorithms

d) Decrease in computational power over time

Answer: d) Decrease in computational power over time
Explanation: CVIP has evolved with advancements in hardware technology, integration of deep learning techniques, and the use of traditional image processing algorithms, but there hasn't been a decrease in computational power over time.

4. What is the purpose of image filtering in CVIP?

a) To remove noise and enhance image quality
b) To decrease image resolution
c) To increase image distortion
d) To invert image colors

Answer: a) To remove noise and enhance image quality
Explanation: Image filtering is used to remove noise and enhance image quality by applying various filters such as blurring, sharpening, or edge detection.

5. Which of the following is NOT an Image Representation technique?

a) Bitmap
b) Vector Graphics
c) JPEG
d) GIF

Answer: c) JPEG
Explanation: JPEG is a file format for compressed images, while Bitmap, Vector Graphics, and GIF are image representation techniques.

6. What is the process of Conditioning in Image Recognition Methodology?

a) Adjusting image contrast
b) Preparing images for classification
c) Labeling objects in an image
d) Grouping similar features in an image

Answer: b) Preparing images for classification
Explanation: Conditioning in image recognition methodology involves preparing images for classification tasks, such as normalization or resizing.

7. Which morphological operation is used to remove small objects from the foreground of an image?

a) Dilation
b) Erosion
c) Opening
d) Closing

Answer: c) Opening
Explanation: Opening is used to remove small objects from the foreground of an image by performing erosion followed by dilation.

8. What does the Hit-or-Miss transformation do in morphological image processing?

a) Detects the presence of specific patterns in an image
b) Smoothens the edges of objects in an image
c) Blurs the image to reduce noise

d) Enhances the contrast of the image

Answer: a) Detects the presence of specific patterns in an image
Explanation: The Hit-or-Miss transformation is used to detect the presence of specific patterns in an image by matching a template.

9. Which morphological operation is used to join closely spaced objects in an image?

a) Dilation
b) Erosion
c) Closing
d) Opening

Answer: c) Closing
Explanation: Closing is used to join closely spaced objects in an image by performing dilation followed by erosion.

10. What is the purpose of Thinning in morphological image processing?

a) To reduce the thickness of objects in an image to single-pixel width
b) To increase the thickness of objects in an image
c) To smoothen the edges of objects in an image
d) To remove small objects from the foreground of an image

Answer: a) To reduce the thickness of objects in an image to single-pixel width
Explanation: Thinning is used to reduce the thickness of objects in an image to single-pixel width while preserving the shape and connectivity.

11. In region growing, how are pixels grouped together?

a) Based on their intensity values
b) Based on their spatial proximity
c) Based on their gradient values
d) Based on their color channels

Answer: b) Based on their spatial proximity
Explanation: Region growing groups pixels together based on their spatial proximity and similarity to seed pixels.

12. What operation is used in morphological image processing to increase the thickness of objects?

a) Thinning
b) Thickening
c) Erosion
d) Dilation

Answer: b) Thickening
Explanation: Thickening is used to increase the thickness of objects in an image by expanding their boundaries.

13. What is the primary purpose of Morphological algorithm operations on binary images?

a) To enhance image quality
b) To remove noise from images
c) To process images with only black and white pixels

d) To adjust image contrast

Answer: c) To process images with only black and white pixels
Explanation: Morphological algorithm operations on binary images are primarily used to process images with only black and white pixels, performing operations like dilation, erosion, opening, and closing.

14. What does the process of Labeling involve in image recognition methodology?

a) Adjusting image contrast
b) Identifying and assigning unique identifiers to objects in an image
c) Removing noise from images
d) Detecting edges in images

Answer: b) Identifying and assigning unique identifiers to objects in an image
Explanation: Labeling in image recognition methodology involves identifying and assigning unique identifiers to objects or regions in an image.

15. Which of the following is NOT a Morphological algorithm operation on gray-scale images?

a) Dilation
b) Erosion
c) Opening
d) Binarization

Answer: d) Binarization
Explanation: Binarization is not a morphological algorithm operation but a process of converting a grayscale image into a binary image.

16. What is the primary purpose of Region shrinking in morphological image processing?

a) To reduce the size of regions in an image
b) To increase the size of regions in an image
c) To smooth the edges of regions in an image
d) To enhance the contrast of regions in an image

Answer: a) To reduce the size of regions in an image
Explanation: Region shrinking is used to reduce the size of regions in an image while preserving their shape and connectivity.

17. Which morphological operation is the opposite of Dilation?

a) Erosion
b) Opening
c) Closing
d) Hit-or-Miss transformation

Answer: a) Erosion
Explanation: Erosion is the opposite of dilation and is used to shrink or erode the boundaries of objects in an image.

18. What does the process of Extracting involve in image recognition methodology?

a) Removing noise from images
b) Identifying and extracting features from images
c) Adjusting image contrast
d) Enhancing image resolution

Answer: b) Identifying and extracting features from images
Explanation: Extracting in image recognition methodology involves identifying and extracting relevant features or patterns from images for further analysis or classification.

19. Which morphological operation is used to remove small holes in objects in an image?

a) Dilation
b) Erosion
c) Opening
d) Closing

Answer: d) Closing
Explanation: Closing is used to remove small holes or gaps in objects in an image by performing dilation followed by erosion.

20. What is the primary purpose of Morphological Image Processing?

a) To enhance image quality
b) To segment and analyze images based on shape and structure
c) To adjust image contrast
d) To remove noise from images

Answer: b) To segment and analyze images based on shape and structure
Explanation: The primary purpose of morphological image processing is to segment and analyze images based on their shape and structure, using operations like dilation, erosion, opening, and closing.

21. Which of the following is NOT a characteristic of Image Statistics?

a) Mean
b) Median
c) Mode
d) Standard deviation

Answer: c) Mode
Explanation: Mode is not typically considered a measure in image statistics, which commonly include mean, median, and standard deviation.

22. Which morphological operation is used to remove small objects from the background of an image?

a) Dilation
b) Erosion
c) Opening
d) Closing

Answer: b) Erosion
Explanation: Erosion is used to remove small objects from the background of an image by shrinking or eroding the boundaries of foreground objects.

23. What does the process of Matching involve in image recognition methodology?

a) Adjusting image contrast
b) Comparing features or patterns in an image with predefined templates
c) Removing noise from images
d) Detecting edges in images

Answer: b) Comparing features or patterns in an image with predefined templates
Explanation: Matching in image recognition methodology involves comparing features or patterns in an image with predefined templates or models to identify similarities or matches.

24. Which morphological operation is used to join broken objects in an image?

a) Dilation
b) Erosion
c) Opening
d) Closing

Answer: a) Dilation
Explanation: Dilation is used to join broken or disconnected objects in an image by expanding their boundaries.

25. What is the primary purpose of Hit-or-Miss transformation in morphological image processing?

a) To detect edges in images
b) To remove noise from images
c) To enhance the contrast of images
d) To detect specific patterns in images

Answer: d) To detect specific patterns in images
Explanation: Hit-or-Miss transformation is used to detect specific patterns or configurations in images by matching a template with the image.

26. Which morphological operation is used to remove protrusions from the boundaries of

objects in an image?

a) Dilation
b) Erosion
c) Opening
d) Closing

Answer: b) Erosion
Explanation: Erosion is used to remove protrusions or small details from the boundaries of objects in an image by shrinking or eroding their boundaries.

27. What does the process of Grouping involve in image recognition methodology?

a) Identifying and assigning unique identifiers to objects in an image
b) Adjusting image contrast
c) Removing noise from images
d) Grouping similar features or patterns in an image

Answer: d) Grouping similar features or patterns in an image
Explanation: Grouping in image recognition methodology involves grouping or clustering similar features or patterns in an image for further analysis or classification.

28. Which of the following is NOT a basic morphological operation?

a) Thinning
b) Erosion
c) Opening
d) Closing

Answer: a) Thinning
Explanation: Thinning is a complex morphological operation used to reduce the thickness of objects in an image to single-pixel width, while erosion, dilation, opening, and closing are basic morphological operations.

29. What is the primary purpose of Region growing in morphological image processing?

a) To reduce the size of regions in an image
b) To increase the size of regions in an image
c) To smoothen the edges of regions in an image
d) To segment regions based on similarity criteria

Answer: d) To segment regions based on similarity criteria
Explanation: Region growing is used to segment regions in an image based on similarity criteria, starting from seed points and iteratively growing the regions.

30. Which morphological operation is used to separate overlapping objects in an image?

a) Dilation
b) Erosion
c) Opening
d) Closing

Answer: c) Opening
Explanation: Opening is used to separate overlapping objects in an image by removing small connections between them, thereby splitting them apart.

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