1. What is the main purpose of facet model recognition?
a) Labeling lines in images
b) Understanding line drawings
c) Classification of shapes by labeling of edges
d) Recognition of shapes

Answer: c) Classification of shapes by labeling of edges
Explanation: Facet model recognition involves categorizing shapes by labeling their edges, aiding in the recognition of various geometric forms within images.

2. Which algorithm is commonly used for solving the labeling problem in facet model recognition?
a) Depth-first search
b) Breadth-first search
c) Backtracking algorithm
d) Dijkstra’s algorithm

Answer: c) Backtracking algorithm
Explanation: The backtracking algorithm is frequently employed to solve the labeling problem in facet model recognition by exhaustively searching through possible solutions and backtracking when a dead-end is encountered.

3. In which branch of mathematics does perspective projective geometry primarily belong?
a) Algebra
b) Calculus
c) Geometry
d) Trigonometry

Answer: c) Geometry
Explanation: Perspective projective geometry is a subfield of geometry that deals with the principles and properties of perspective projections.

4. What does inverse perspective projection involve?
a) Converting 3D objects into 2D images
b) Converting 2D images into 3D objects
c) Mapping 3D points to a 2D plane
d) Mapping 2D points to a 3D space

Answer: b) Converting 2D images into 3D objects
Explanation: Inverse perspective projection refers to the process of reconstructing three-dimensional objects from two-dimensional images, which is essential for tasks like photogrammetry.

5. Which technique is used to convert images from 2D to 3D in photogrammetry?
a) Intensity matching
b) Edge detection
c) Perspective projection
d) Inverse perspective projection

Answer: d) Inverse perspective projection
Explanation: Photogrammetry employs inverse perspective projection to reconstruct three-dimensional structures from two-dimensional images captured from different viewpoints.

6. What is the primary goal of image matching in computer vision?
a) Identifying objects

b) Enhancing image resolution
c) Adjusting brightness and contrast
d) Aligning corresponding features in different images

Answer: d) Aligning corresponding features in different images
Explanation: Image matching aims to find corresponding features or points between different images, facilitating tasks like object recognition and alignment.

7. Which method is commonly used for matching intensity signals in images?
a) Histogram equalization
b) Template matching
c) Fourier transform
d) Edge detection

Answer: b) Template matching
Explanation: Template matching involves comparing the intensity patterns of a predefined template with regions in an image to find matches.

8. What aspect of images does hierarchical image matching focus on?
a) Global features
b) Local features
c) Color distribution
d) Texture analysis

Answer: a) Global features
Explanation: Hierarchical image matching emphasizes identifying similarities based on global characteristics of images, such as overall shape or structure, rather than local details.

9. In the context of object models and matching, what are global features?
a) Small-scale patterns
b) Large-scale patterns
c) Texture details
d) Color variations

Answer: b) Large-scale patterns
Explanation: Global features in object models refer to large-scale patterns or characteristics of objects, which are typically invariant to local variations.

10. Which type of features is more suitable for capturing fine details in object models?
a) Global features
b) Local features
c) Color features
d) Shape features

Answer: b) Local features
Explanation: Local features are better suited for capturing fine details and specific characteristics of objects, making them essential for tasks like object recognition and matching.

11. What is the primary focus of facet model recognition?
a) Matching 3D models to 2D images
b) Labeling lines and edges in images
c) Generating photorealistic renderings
d) Analyzing color gradients in images

Answer: b) Labeling lines and edges in images
Explanation: Facet model recognition primarily involves the identification and labeling of lines and edges within images to facilitate shape classification and recognition.

12. Which algorithm is commonly used for solving the consisting labeling problem in facet model recognition?
a) A* algorithm
b) Genetic algorithm
c) Backtracking algorithm
d) Simulated annealing algorithm

Answer: c) Backtracking algorithm
Explanation: The backtracking algorithm is frequently employed to solve the consisting labeling problem in facet model recognition by exhaustively exploring possible solutions and backtracking when necessary.

13. What is the fundamental principle of perspective projective geometry?
a) Maintaining parallel lines in projections
b) Preserving angles between lines
c) Minimizing distortions in images
d) Reflecting light rays from surfaces

Answer: b) Preserving angles between lines
Explanation: Perspective projective geometry revolves around the principle of preserving angles between lines in projections, which is essential for maintaining the perceived spatial relationships in images.

14. In photogrammetry, what does the term “image matching” primarily refer to?
a) Adjusting image brightness
b) Aligning corresponding points in images
c) Enhancing image resolution
d) Filtering image noise

Answer: b) Aligning corresponding points in images
Explanation: In photogrammetry, image matching primarily involves finding corresponding points or features in different images, enabling the reconstruction of three-dimensional structures.

15. What distinguishes inverse perspective projection from perspective projection?
a) Direction of projection
b) Number of dimensions
c) Type of objects involved
d) Level of distortion

Answer: a) Direction of projection
Explanation: Inverse perspective projection involves projecting points from a two-dimensional plane to a three-dimensional space, whereas perspective projection projects points from a three-dimensional space onto a two-dimensional plane.

16. Which method is commonly used for matching 2D images in computer vision tasks?
a) Histogram matching
b) Template matching
c) Edge detection
d) Fourier transform

Answer: b) Template matching
Explanation: Template matching is a common method used for comparing patterns in images to find matches, which is essential for tasks like object recognition and image alignment.

17. What aspect of images does hierarchical image matching primarily focus on?
a) Color distribution
b) Texture analysis
c) Local features
d) Global features

Answer: d) Global features
Explanation: Hierarchical image matching emphasizes identifying similarities based on global characteristics of images, such as overall shape or structure, rather than local details.

18. In the context of object models and matching, what do local features represent?
a) Small-scale patterns
b) Large-scale patterns
c) Color variations
d) Texture details

Answer: a) Small-scale patterns
Explanation: Local features in object models represent small-scale patterns or characteristics of objects, which are essential for capturing fine details and specific attributes.

19. What distinguishes global features from local features in object models?
a) Scale of representation
b) Color depth

c) Texture complexity
d) Geometric properties

Answer: a) Scale of representation
Explanation: Global features represent large-scale patterns or characteristics of objects, whereas local features represent small-scale patterns or details, differing primarily in their scale of representation.

20. Which type of features is more suitable for capturing overall shape characteristics in object models?
a) Global features
b) Local features
c) Color features
d) Texture features

Answer: a) Global features
Explanation: Global features are better suited for capturing overall shape characteristics and large-scale patterns in object models, making them essential for tasks like shape recognition and classification.

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