28. In an unsupervised learning algorithm, how can you determine the optimal number of clusters?
A) By manually labeling clusters
B) By setting a fixed number
C) Using the Elbow Method
D) Using only hierarchical clustering

29. What is the best way to improve a pattern recognition system handling occluded shapes?
A) Ignore occluded data
B) Increase dataset size only
C) Use multimodal approaches
D) Reduce feature vectors

30. What is the best method to handle rotational variance in shape recognition?
A) Ignoring rotated shapes
B) Increasing dataset size
C) Applying more convolution layers
D) Differential chain codes

31. What is the role of feature vectors in pattern recognition?
A) They store raw image data
B) They encode essential pattern characteristics
C) They eliminate noise in data preprocessing
D) They classify data directly

32. Which method improves the robustness of a pattern recognition system?
A) Using redundant features
B) Employing adaptive learning algorithms
C) Ignoring errors in segmentation
D) Reducing the number of training samples

33. In supervised learning, how does a model learn?
A) By grouping similar patterns without prior labels
B) By discarding irrelevant features
C) By mapping input patterns to labeled outputs
D) By clustering similar features

34. Which of the following is a challenge in feature selection?
A) Selecting features that generalize well
B) Using a small dataset
C) Eliminating all noise from the data
D) Avoiding the use of numerical data

13. A parallel computing system consists of multiple processor that communicate with each other using a ___.
A) Allocated memory
B) Shared memory
C) Network
D) None of the above

14. In parallel computing systems, as the number of processors increases, with enough parallelism available in applications.
A) True
B) False

15. Parallel computing can be used in ___
A) Science and engineering
B) Database and data mining
C) Real time simulation of systems
D) All of the above

16. What is the primary goal of parallel programming?
A) To reduce code complexity
B) To enhance performance and efficiency
C) To simplify debugging
D) To increase memory usage

17. What type of parallelism involves executing different tasks concurrently?
A) Data parallelism
B) Task parallelism
C) Sequential programming
D) Synchronous programming

18. Which type of parallelism divides data into smaller chunks?
A) Task parallelism
B) Data parallelism
C) Process parallelism
D) Thread parallelism

19. What is the Global Interpreter Lock (GIL) primarily a limitation for?
A) I/O-bound tasks
B) CPU-bound tasks
C) Networking tasks
D) Memory-bound tasks