

Invigilator's Signature : .....



- iv) "The simplest method of image segmentation is called the thresholding method". The given statement is
  - a) True
  - b) False.
- v) Machine vision image processing methods include
  - a) Segmentation
  - b) Pattern recognition
  - c) Blob analysis
  - d) all of these.
- vi) "Control system is an integral part of robotics". The given statement is
  - a) True
  - b) False.
- vii) Recovering information from a carrier is known as
  - a) demultiplexing
  - b) modulation
  - c) detection
  - d) carrier recovery.
- viii) Support vector machines (SVM) are ..... model.
  - a) Unsupervised learning
  - b) Supervised learning
  - c) Reinforcement learning
  - d) Transduction.
- ix) Which of the following is not a limitation of decision tree ?
  - a) Overfitting
  - b) Biased information gain
  - c) Large data in a short time
  - d) NP-complete problem.
- x) Connectivity based clustering is known as
  - a) Fuzzy clustering
  - b) Subspace clustering
  - c) Hierarchical clustering
  - d) Co-clustering.



- xi) Which of the following is/are found in Genetic Algorithms ?
- a) Evolution
  - b) Selection
  - c) Reproduction
  - d) Mutation.
- xii) Where is Artificial Life applicable ?
- a) Film (movie, video) production
  - b) Biology
  - c) Robotics
  - d) Air traffic control.

**GROUP – B**

**( Short Answer Type Questions )**

Answer any *three* of the following.  $3 \times 5 = 15$

- 2. What are problem decomposition and constraint satisfaction ?
- 3. Write the general merits of a production system.
- 4. What is a production system ? Explain the types of production systems.
- 5. What is predicate logic ? Explain with example.
- 6. What is non-monotonic reasoning ? Explain different types of non-monotonic reasoning.

**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

- 7. a) What do you mean by problem solving by intelligent search ?
- b) Explain the search algorithms like generate and test, hill climbing, means and ends analysis.
- c) Discuss heuristic search with appropriate example.

$2 + 8 + 5$



8. a) Describe probabilistic reasoning.  
b) Briefly explain Pearl's scheme for evidential reasoning.  
c) Explain the Dempster-Shafer Theory. 4 + 6 + 5
9. a) What is machine learning ? Explain four different categories of machine learning techniques.  
b) What are the methods of intelligent planning ? 10 + 5
10. Write short notes on any *three* of the following : 3 × 5
- a) Visual and Linguistic Perception
  - b) Pattern Clustering and Pattern Classification
  - c) Linear and Non-linear Classification
  - d) *K* means clustering
  - e) Fuzzy *c*-means clustering
  - f) Principal component analysis.

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