Multiple Choice Questions (Units 3, 4, 5)

Unit III

1. Bayes theorem is primarily used to calculate _____. Answer: A. Probabilities

2. The Naive Bayes classifier assumes that features are _____. Answer: B. Independent

3. The principle that suggests a model should be as simple as possible while fitting the data is known as _____. Answer: A. Occam's Razor

4. In Bayesian learning, the term "prior" refers to _____. Answer: A. Initial beliefs before seeing data

5. The EM algorithm is primarily used for _____. Answer: A. Parameter estimation

6. In computational learning theory, the term PAC stands for _____. Answer: A. Probably Approximately Correct

7. In Bayesian learning, "likelihood" refers to _____. Answer: A. The probability of the data given the model

8. Which of the following is a key assumption of the Naive Bayes classifier? Answer: A. Conditional independence

9. Instance-based learning focuses on _____. Answer: A. Storing all training examples

10. The Vapnik-Chervonenkis (VC) dimension measures _____. Answer: A. The capacity of a model to learn

Unit IV

1. Genetic algorithms are inspired by _____. Answer: A. Natural selection

2. The process of selecting individuals for reproduction in a genetic algorithm is called _____. Answer: C. Selection

3. In genetic programming, the individuals are typically represented as _____. Answer: B. Trees

4. The main objective of reinforcement learning is to learn _____. Answer: A. Optimal actions

5. A characteristic of genetic algorithms is _____. Answer: B. Exploration

6. In reinforcement learning, the feedback received from the environment is called _____. Answer: A. Reward

7. Genetic algorithms primarily use a fitness function to _____. Answer: A. Select individuals for reproduction

8. In reinforcement learning, the process of exploring and exploiting to maximize rewards is called _____. Answer: A. Exploration-exploitation tradeoff

9. The process of combining two parent solutions to form new offspring in genetic algorithms is called _____. Answer: A. Crossover

10. Reinforcement learning is typically used in _____ environments. Answer: A. Dynamic

Unit V

1. Analytical learning focuses on _____. Answer: A. Combining prior knowledge with examples

2. In analytical learning, prior knowledge is used to _____. Answer: D. All of the above

3. The combination of inductive and analytical learning helps in _____. Answer: D. All of the above

4. Analytical learning is particularly useful in _____ domains. Answer: C. Complex

5. The process of using examples to refine knowledge is known as _____. Answer: D. Knowledge refinement

6. Combining analytical and inductive learning leads to _____ Answer: D. All of the above

7. A significant advantage of analytical learning is its ability to incorporate _____ Answer: C. Expert knowledge

8. In the context of analytical learning, the term "explanation-based learning" refers to _____ Answer: C. Learning from reasoning

9. Analytical learning can help in _____ decision-making processes. Answer: A. Complex

10. The combination of inductive and analytical learning can improve _____ performance.

Answer: A. Predictive