SUPERVISED LEARNING - TEST 1 (20 to 30 mins)

15-Question Test on Linear Regression, Gradient Descent, Bias & Variance

Topics:

 Linear Regression:

 Gradient Descent:

 Bias & Variance:



Section 1: Linear Regression

Q1. What is Linear Regression?   
Answer:

Q2. Write the formula for simple linear regression. Answer:

Q3. What is the purpose of the cost function in linear regression? Answer:

Q4. How do you interpret the coefficients in a multiple linear regression model?

Answer:

Q5. What are the assumptions of Linear Regression? Answer:



Section 2: Gradient Descent

Q6. What is Gradient Descent?

Answer:

Q7. Write the formula for parameter update in Gradient Descent. Answer:

Q8. What is the role of the learning rate in Gradient Descent? Answer:



Q9. What is the primary purpose of regularization in machine learning models?

A) To increase the complexity of the model to fit the training data better.

B) To minimize the training error without regard to generalization.

C) To prevent overfitting by penalizing large coefficients in the model.

D) To ensure that all features are included in the final model regardless of their importance.

Q10. What happens if the learning rate is too small or too large? Answer:



Section 3: Bias & Variance

Q11. Define Bias and Variance in the context of machine learning models. Answer:

Q12. What is the Bias-Variance tradeoff?

Answer:

Q13. How does increasing the complexity of a model affect bias and variance?

Answer:

Q14. What is underfitting and overfitting in machine learning? Answer:

Q15. How can you reduce overfitting in a model? Answer: