



**BRAC University**  
**Department of Computer Science and Engineering**  
CSE 422: Artificial Intelligence (C)  
Quiz 03: Spring 2025    Time: 30 Minutes    Marks: 10

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Name		ID		Section	
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1. Suppose there is a error function as the following,  $J(\theta) = (\theta - 1)^2$ ,  $\theta = 2$ ,  $\alpha = 0.1$ . What will be the value of  $\theta$  after one iteration of gradient descent algorithm. [2.5]

2. What happens when the learning rate is too high in gradient descent? [2.5]

3. Can we use  $\tanh(z) = \frac{e^z - e^{-z}}{e^z + e^{-z}}$  as an alternative of sigmoid function, why or why not? [2.5]

4. Think of a problem where you have to predict if Manchester United will win the league in the next season or not. What could be features if you are designing it as a machine learning problem. What type of problem it is? [2.5]