National University of Computer and Emerging Sciences, Lahore Campus

	Course:	**Design and Analysis of Algorithms**	**Course Code:**	**CS302**
	Program:	**BS(Computer Science)**	**Semester:**	**Spring 2018**
	Duration:	**10 Minutes**	**Total Marks:**	**10**
	Paper Date:	**6-Feb-18**	**Weight**	**4**
	Section:	**E**	**Page(s):**	**1**
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	Exam:	**Quiz 1(b)**	**Section:**	

True/False Justify your answer

1. $n^2 = \Theta(4^{\lg n})$ True as $4^{\lg n} = 2^{2\lg n} = 2^{\lg n^2} = n^2$
2. $n^2 = O(4^{\lg n})$ True
3. $n^2 = \Omega(4^{\lg n})$ True
4. $n \lg n = \Theta(\ln n^n)$ True since change in log base does not change asymptotic bounds
5. $n \lg n = \Omega(\ln n!)$ True as $\lg n! = \Theta(n \lg n)$