National University of Computer and Emerging Sciences, Lahore Campus

	Course:	**Data Warehousing & Data Mining**	**Course Code:**	**CS409**
	Program:	**BS(Computer Science)**	**Semester:**	**Fall 2017**
	Date:	**31-Oct-2017**	**Total Marks:**	**10**
	Roll No:		**Weight:**	
	Section:	**CS**	**Page(s):**	**1**
	Quiz:	**4 (Indexing Techniques)**		

Instruction/Notes:

Consider the following tables and statistics which are part of a bank system:

ACCOUNT (accId, title, accType, rating, openingDate, …);

Block Size= 4 KB; Available Memory= 100 Blocks; Rows= 250,000; Row Width= 500 bytes; Index entry size (i.e. RID Width)= 8 bytes. Assume accounts with 'SAVING' accType are 4%, accounts with 'CHECKING' accType are 10%, and accounts with '1' rating are 6%.

Query: SELECT COUNT(*) FROM account WHERE (accType= 'SAVING' OR accType= 'CHECKING') AND Rating= 1

Calculate the I/O cost for the above query using

a) Composite index access (Assume a composite index exist on accType and rating columns)
b) Dynamic Bitmap index access (Assume indexes exist on accType and rating columns separately)
c) Clustered index access (Assume only clustered index exist on accType column)