National University of Computer and Emerging Sciences, Lahore Campus

Course:	Data Warehousing & Data Mining	Course Code:	CS409
Program:	BS(Computer Science)	Semester:	Fall 2016
Duration:	20 Minutes	Total Marks:	10
Paper Date:	01-Nov-16	Weight	
Section:	B	Page(s):	1
Exam:	Quiz (Indexing Techniques)	Roll No:	……..

Instruction/Notes:

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

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

Block Size= 8 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 1%, accounts with 'CHECKING' accType are 5%, and accounts with '1' rating are 2%.

Query: SELECT title, openingDate FROM account WHERE (accType= 'SAVING' OR accType= 'CHECKING') AND Rating= 1

Calculate the I/O cost for the above query using

1) Single index access (Assume indexes exist on accType and rating columns separately)
2) Combining multiple indexes (Assume indexes exist on accType and rating columns separately)
3) Static Bitmap Indexes (Assume static bitmap indexes exist on accType and rating columns)
4) Composite index access (Assume a composite index exist on accType and rating columns)