

Roll :

Time : 25 minutes

1. Discuss the cost model of two types of *LSM tree*, *sorted array* and *log* **in short**; and fill up the following table with the corresponding cost values. You must express the cost orders in terms of the *size ratio* T . Consider fence pointers are present but there is no bloom filters. From this cost model, justify the following line “**The design space of LSM trees spans everything between a write-optimized log to a read-optimized sorted array**”.
- (4 + 4 + 4)

	Lookup Cost	Update Cost
Levelled LSM Tree		
Tiered LSM Tree		
Sorted Array		
Log		

2. What is/are the design knob(s) that ***Monkey*** tries to tune to impact the worst-case behavior? What is/are the key idea(s) behind ***Monkey*** to minimize the worst case lookup cost? What is/are the intuition(s) behind this idea?
(3 + 2 + 3)