

Q.1

Consider a 4-way set associative mapping with 16 cache blocks. The memory block requests are in the order-

0, 303, 1, 4, 3, 8, 135, 157, 216, 129, 63, 8, 48, 32, 73, 92, 155, 111

LRU replacement policy is used when the set is full

- a. Show the contents of each set.
- b. Identify the set which has no replacement.
- c. What are the changes observed when 4-way is replaced by 8-way set associative mapping.

Q2.

An organization named Scientific Indian conducts research in Computer Science. It made a 32 bit computer with having a set associative cache. Main memory is 4GB and the cache size is 256KB. The memory is made into blocks of 128 bytes. The association of the cache is 4 way.

- i. How many blocks of memory are there?
- ii. How many lines in cache?
- iii. How many sets are there in cache?
- iv. Other parameters being same except the association, which is made 16 way. how many sets would be there in the cache?