Computer Science and Engineering Department, SVNIT, Surat
B.tech.-II, Semester-III
Tutorial – 5

Ques 1:
Consider main memory is 256 KB size and 16 KB direct cache with block size 256 bytes. Calculate tag memory size.

Ques 2:

1. How many 128 × 8 RAM chips are needed to provide a memory capacity of 2048 bytes?
2. How many lines of the address bus must be used to access 2048 bytes of memory? How many of these lines will be common to all chips?

Ques 3:
Consider a 4-way set associative cache consisting of 128 lines with a line size of 64 words. The CPU generates a 20-bit address of a word in main memory. The number of bits in the TAG, LINE and WORD fields are respectively:

Ques 4:
A digital computer has a memory unit of 64K X 16 & a cache memory of 1k words. The cache uses direct mapping with a block size of four words.

(a)How many bits are there in the tag, index, block and word fields?

(b)How many bits are there in each word of cache & how are they divided into functions Include a valid bit

(c) How many blocks can be accommodated?

Ques 5:
Consider a disk pack with the following specifications- 16 surfaces, 128 tracks per surface, 256 sectors per track and 512 bytes per sector.
Number of surfaces = 16
Number of tracks per surface = 128
Number of sectors per track = 256
Number of bytes per sector = 512 bytes
Answer the following questions-

1. What is the capacity of the disk pack?
2. What is the number of bits required to address the sector?