Quiz # 4

Time: 15 min

Marks: 10

BESE 15 B- COA

- A program on a system takes 1,000,000 cycles to run. If the system archives a CPI of 40, how many instructions were executed in running the program?
- Suppose a computer using direct mapped cache has 2^{32} words of main memory, and a cache of 1024 blocks, where each cache block contains 32 words.
  - How many blocks of main memory are there?
  - What is the format of a memory address as seen by the cache?
  - To which cache block will the memory reference 000063FA h map?

Solution Quiz # 4

- A program on a system takes 1,000,000 cycles to run. If the system archives a CPI of 40, how many instructions were executed in running the program?
  - Solution:
    - CPI = # of cycles/# of instructions
    - # of instruction = # of cycles/CPI
    - 1000,000 / 40 = 25000
    - So 25000 cycles were executed in running a Program
- *Cache*
  - $2^{32}/2^{5} = 2^{27}$
  - 32 bit addresses with 17 bits in the tag field, 10 in the block field, and 5 in the word field
  - 000063FA = 00000000000000000 1100011111 11010= Block 799