**Q4**

memory address is a reference to a specific memory location used at various levels by software and hardware. Memory addresses are fixed-length sequences of digits conventionally displayed and manipulated as unsigned integers. Such numerical semantic bases itself upon features of CPU (such as the instruction pointer and incremental address registers), as well upon use of the memory like an array endorsed by various programming languages.

**A**

If you want to see your cached memory of your processor . then you have to go to the BIOS Setup . which is normally F10 in most of the computers . or may be F4 or F12.

you have to press the key on start-up of your computer. then you have to go on system information.

SO THE PROCESS IS THE FOLLOWING :

1. press the start button of your CPU . or just restart you computer.

2. press f10 (for hp) and f9 , f12 for others. press key for 2 to 3 times.

3.then go to the system information. and press enter . (note that: your mouse will not work in bios menu .)

The most important thing I want to tell you is the chached memory is on processor not RAM. so whenever you buy any new Ram or processor then you must check the bus speed of the ram and the cache memory or the processor . cached memory and and bus speed both are in MHZ . if both are same then it is good but if they are not equal then you should keep it in mind that the chache memory which is in the procesor is more then the bus speed which is on the RAM .

**B**

virtual address is 16 bit long.

Hence, there are 2^16 addresses in the virtual address space.

Page Size is given to be 4 KB ( there are 4K (4 \* (2 ^ 10) )addresses in a page), so the number of pages will be ( 2^16 ) / ( 2 ^ 12 ) = 2 ^ 4.

To address each page 4 bits are required.

The most significant 4 bits in the virtual address will denote the page number being referred and the remaining 12 bits will be the page offset.

One thing to remember is page size (in the virtual address space ) is always same as the frame size in the main memory. Hence the last 12 bits will remain same in the physical address as that of the virtual address.

To get the frame address in the main memory just use the first 4 bits.

Example: Consider the virtual address 0xACA1

Here A in ACA1 denotes the page number ( 10 ) and corresponding frame no is 5 ( 0101) hence the resulting physical address will be → 0x5CA1.

for example:

0xE12C → 0x312C

0x3A9D → 0xAA9D

0xA9D9 → 0x59D9

0x7001 → 0xF001

0xACA1 → 0x5CA1

... ...

**Q5**

#include "idnm.h"

int main(int argc, char \*argv[]){

//(A)

if(argc<2) {

cout<<"arguments are invalid!"<<endl;

return -1;

//(B)

int search\_id=atoi(argv[1]);

//set up for memory mapped file

int fd=fopen(filename, O\_RDONLY)

struct stat stat\_buf;

fstat(fd, &stat\_buf)

int size=stat\_buf.st\_size;

//(C)

void \*file\_bytes=stat\_buf.address

//(D)

fhead\_t \*fhead=(fhead\_t\*)malloc(sizeof(fhead\_t));

//(E)

idmn\_t \*idmn\_sec=(idmn\_t\*)malloc(sizeof(idmn\_t));

char \*nm\_sec=fhead.nm\_sec\_off;

//(F)

char \*name=fhead->nm\_off;

//(G)

if(fhead->id==i){

printf("%x\n",\*fhead->id);

printf("%s\n",\*fhead->name);

}

}