Experiment 10:

(a) Write a C program to print the address of a variable and enter a long loop (say using while(1)). Start three to four processes of the same program and observe the printed address values.

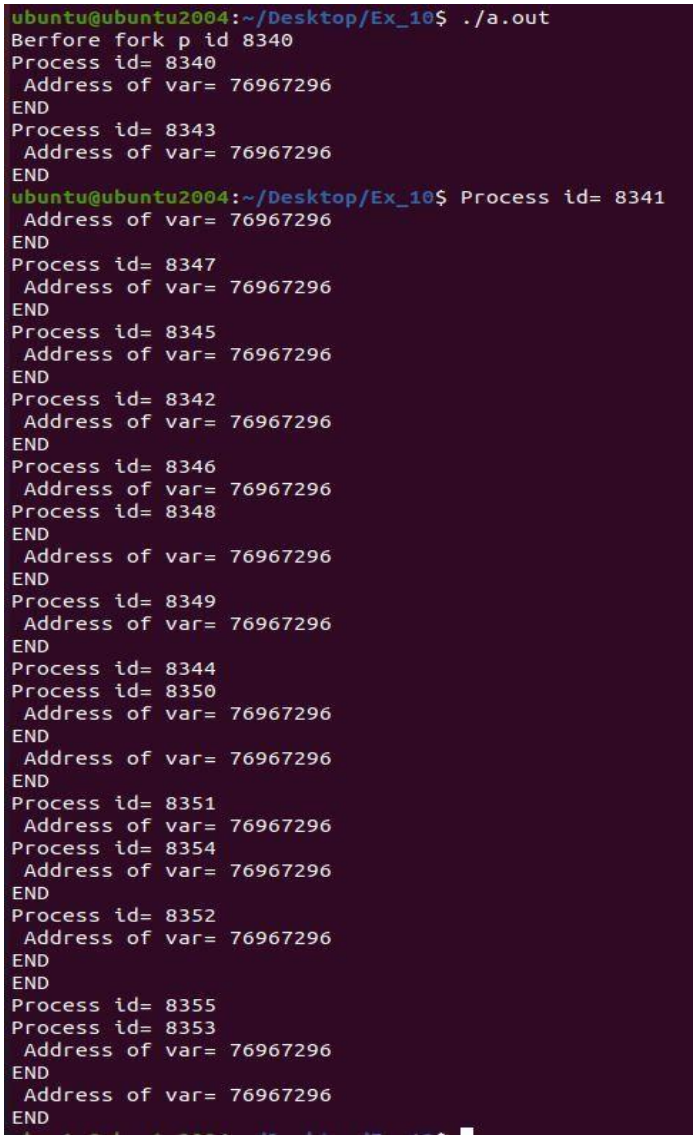
Command: nano filename.c

Program:

```
#include<stdio.h>
#include<sys/types.h>
#include<unistd.h>  Int
main() {
printf("Before fork p id :%d\n",getpid());
int i=0; while(1){ fork(); if(i==3) break;
i++;
}
int var;
printf("Process id =%d\n Address of var =%u\n",getpid(),&var);
printf("END\n"); return 0;
}
```

Terminal: gcc filename.c
./a.out

```c
#include<stdio.h>
#include<sys/types.h>
#include<unistd.h>
int main(){
  printf("Berfore fork p id %d\n",getpid());
  int i=0;
 while(1){
    fork();
     if(i==3)
       break;
     i++;
    }
  int var;
   printf("Process id= %d\n Address of var= %u\n",getpid(),&var);
  printf("END\n");
return 0;
}
```



(b) Show how Two processes which are members of the relationship parentchild are concurrent from execution point of view, initially the child is copy of the parent, but every process has its own data.

Command: nano filename.c

Program: #include<unistd.h>

#include<sys/types.h>

```
#include<errno.h>
#include<stdio.h>
#include<sys/wait.h>
#include<stdlib.h>
int main()
{
int var=1;
int* p=(int*)malloc(2);
pid_t PID=fork();
*p=0;
if(PID>=0)
{
if(PID==0)
{
printf("\n\nChild Process:\nInitial Value = %d",var);
var=5;
printf("\nNew Value of var =%d",var);
printf("\nAddress of malloc in child =%p",p);
printf("\nAddress of var in child =%p\n",&var);
}
```

```
else
{
printf(“\n\nParent process:\nInitial value =%d”,var);
var=10;
printf(“\nNew value =%d”,var);
printf(“\nAddress of malloc in parent =%p”,p);
printf(“\nAddress of var in child =%p\n”,&var);
}
}
return 0;
}
```

```c
#include<unistd.h>
#include<sys/types.h>
#include<errno.h>
#include<stdio.h>
#include<sys/wait.h>
#include<stdlib.h>
int main()
{
int var=1;
int* p=(int*)malloc(2);
pid_t PID=fork();
*p=0;
if(PID>=0)
{
if(PID==0)
{
printf("\n\nChild Process:\nInitial Value = %d",var);
var=5;
printf("\nNew Value of var = %d",var);
printf("\nAddress of malloc in child = %p",p);
printf("\nAddress of var in child = %p\n",&var);
}
else
{
printf("\n\nParent process:\nInitial value = %d",var);
var=10;
printf("\nNew Value = %d",var);
printf("\nAddress of malloc in parent = %p",p);
printf("\nAddress of var in child = %p\n",&var);
}
}
return 0;
}
```

```
                :/mnt/d$ nano exp10b.c
                :/mnt/d$ gcc exp10b.c
                :/mnt/d$ ./a.out



Parent process:

Child Process:
Initial value = 1
Initial Value = 1
New Value = 10
New Value of var = 5
Address of malloc in parent = 0x7fffe26182a0
Address of malloc in child = 0x7fffe26182a0
Address of var in child = 0x7fffe9df1ec8
Address of var in child = 0x7fffe9df1ec8
```