11. A. Write a C/C++ program to illustrate the race condition.

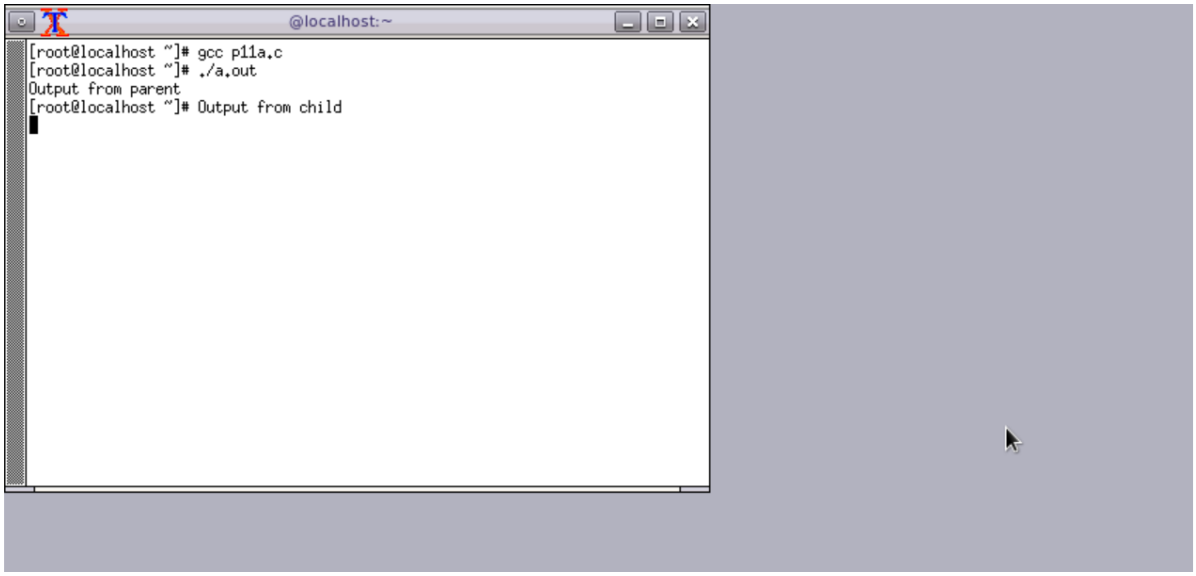
```
#include<stdio.h>
#include<unistd.h>
#include<stdlib.h>
static void charatatime (char *);

int main (void)
{
    pid_t  pid;
    if ((pid=fork( ))< 0)
     {
       printf("fork  error\n");
     }
    else if(pid==0)
     {
       charatatime("Output from child\n");
     }
    else
     {
       charatatime("Output from parent\n");
     }
     exit(0);
}

static void charatatime(char *str)
{
   char *ptr;
   int c;
```

```
    setbuf(stdout,NULL);          /* set unbuffered*/
    for(ptr=str;(c=*ptr++)!=0;)
    putc(c,stdout);
}
```

OUTPUT:

Command for compiling : gcc pgmname.c

Command to execute : ./a.out



B) Write a C/C++ program which demonstrates inter-process communication between a reader process and a writer process. Use mkfifo, open, read, write and close APIs in your program.

```
#include<stdio.h>
#include<stdlib.h>
#include<fcntl.h>
#include<unistd.h>
#include<sys/types.h>
#include<string.h>
int main(int argc,char *argv[])
{
int fd,num1,num2;
char buf[100];
```

```
if(argc==3)
{
mkfifo(argv[1],0666);
fd=open(argv[1],O_WRONLY);
num1=write(fd,argv[2],strlen(argv[2]));
printf("no of bytes written = %d\n",num1);
}
if(argc==2)
{
fd=open(argv[1],O_RDONLY);
num2=read(fd,buf,sizeof(buf));
buf[num2]='\0';
printf("Message size %d received \n message recieved is = %s",num2,buf);
}
close(fd);
unlink(argv[1]);
return 0;
}
```

****

Program Output:

Terminal 1

```
[root@localhost ~]# vi p11b.c
[root@localhost ~]# cc p11b.c –o writerprocess
[root@localhost ~]# writerprocess pipe1 helloworld
Number of bytes written = 10
```

Terminal 2

[root@localhost ~]# vi p11b.c

[root@localhost ~]# cc p11b.c –o readerprocess

[root@localhost ~]# readerprocess pipe1

Message of size 10 bytes recieved

Message received = helloworld