

1(a)

```
Open [ + ] *q1.c ~/
1 #include<stdio.h>
2 #include<unistd.h>
3 #include<sys/wait.h>
4 int main(){
5 pid_t C1 = fork();
6 if(C1 ==0)
7 {
8 fprintf(stderr,"Child Process id: %d",getpid());
9 while(1);
10 }
11 else
12 {
13 fprintf(stderr,"Parent Process id: %d",getpid());
14 while(1);
15 }
16 }
```

```
root@DESKTOP-8EIFV6T:~# gcc q1.c
root@DESKTOP-8EIFV6T:~# ./a.out
Parent Process id: 8226Child Process id: 8227
```

```
root@DESKTOP-8EIFV6T:~# ps -al
F S  UID      PID     PPID  C PRI  NI ADDR SZ WCHAN  TTY          TIME CMD
0 R   0       8226      354  99  80   0 -  661 -          pts/0      00:00:21 a.out
1 R   0       8227     8226  99  80   0 -  661 -          pts/0      00:00:21 a.out
4 R   0       8311     5528   0  80   0 - 1871 -          pts/2      00:00:00 ps
root@DESKTOP-8EIFV6T:~# |
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1(b)

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root@DESKTOP-8EIFV6T:~# kill -9 8227
root@DESKTOP-8EIFV6T:~# ps -al
F S  UID      PID     PPID  C PRI  NI ADDR SZ WCHAN  TTY          TIME CMD
0 R   0       8226      354  99  80   0 -  661 -          pts/0      00:01:03 a.out
1 Z   0       8227     8226  88  80   0 -    0 -          pts/0      00:00:56 a.out <defunct>
4 R   0       8480     5528   0  80   0 - 1871 -          pts/2      00:00:00 ps
root@DESKTOP-8EIFV6T:~# |
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1(c)

```
root@DESKTOP-8EIFV6T:~# gcc q1.c
root@DESKTOP-8EIFV6T:~# ./a.out
Parent Process id: 8917Child Process id: 8918
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```
root@DESKTOP-8EIFV6T:~# kill -9 8917
root@DESKTOP-8EIFV6T:~# ps -al
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F	S	UID	PID	PPID	C	PRI	NI	ADDR	SZ	WCHAN	TTY	TIME	CMD
1	R	0	8918	352	99	80	0	-	661	-	pts/0	00:00:39	a.out
4	R	0	9077	5528	0	80	0	-	1871	-	pts/2	00:00:00	ps

```
root@DESKTOP-8EIFV6T:~#
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1(d)

Open
+

*q1.c
~/

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1 #include<stdio.h>
2 #include<unistd.h>
3 #include<sys/wait.h>
4 int main(){
5     pid_t C1 = fork();
6     if(C1 == 0)
7     {
8         fprintf(stderr, "Child Process id: %d", getpid());
9         while(1);
10    }
11    else
12    {
13        fprintf(stderr, "Parent Process id: %d", getpid());
14        wait(NULL);
15        while(1);
16    }
17 }
```

```
root@DESKTOP-8EIFV6T:~# gcc q1.c
root@DESKTOP-8EIFV6T:~# ./a.out
Parent Process id: 11533Child Process id: 11534
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```
root@DESKTOP-8EIFV6T:~# ps -al
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F	S	UID	PID	PPID	C	PRI	NI	ADDR	SZ	WCHAN	TTY	TIME	CMD
0	S	0	11533	354	0	80	0	-	661	do_wai	pts/0	00:00:00	a.out
1	R	0	11534	11533	99	80	0	-	661	-	pts/0	00:01:08	a.out
4	R	0	11803	5528	0	80	0	-	1871	-	pts/2	00:00:00	ps

1(e)

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root@DESKTOP-8EIFV6T:~# kill -9 11534
root@DESKTOP-8EIFV6T:~# ps -al
F S      UID      PID      PPID  C  PRI   NI  ADDR  SZ  WCHAN  TTY      TIME CMD
0 R      0      11533      354   1   80    0   -    661  -      pts/0    00:00:01 a.out
4 R      0      12096     5528   0   80    0   -   1871  -      pts/2    00:00:00 ps
root@DESKTOP-8EIFV6T:~# |
```

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Open  q3.c  Save
1 #include<stdio.h>
2 #include<sys/wait.h>
3 #include<unistd.h>
4 int main()
5 {
6     if(vfork()==0)
7     {
8         fprintf(stderr, "\nChild process id :%d Parent process id :%d\n", getpid(), getppid());
9         execl("/usr/bin/cp", "cp", "file1", "file2", NULL);
10        _exit(0);
11    }
12    sleep(1);
13    if(vfork()==0)
14    {
15        fprintf(stderr, "\nChild process id :%d Parent process id :%d\n", getpid(), getppid());
16        execl("/usr/bin/cat", "cat", "file2", NULL);
17        _exit(0);
18    }
19    sleep(1);
20    if(vfork()==0)
21    {
22        fprintf(stderr, "\nChild process id :%d Parent process id :%d\n", getpid(), getppid());
23        execl("/usr/bin/sort", "sort", "-r", "file2", NULL);
24        _exit(0);
25    }
26    sleep(1);
27    fprintf(stderr, "\nParent process id :%d", getpid());
28 }
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```

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(munu@kali)-[~]
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```
(munu@kali)-[~]
$ gedit q3.c
^C
1 fprintf(stderr, "\nChild process id :%d Parent process id :%d\n",
2 execl("/usr/bin/cp", "cp", "file1", "file2", NULL);
(munu@kali)-[~]
$ gcc q3.c
1 sleep(1);
(munu@kali)-[~]
$ ./a.out
14 fprintf(stderr, "\nChild process id :%d Parent process id :%d\n",
15 execl("/usr/bin/cat", "cat", "file2", NULL);
Child process id :7411 Parent process id :7410
17 }
Child process id :7420 Parent process id :7410
1 //fork()=0
2 {
3 fprintf(stderr, "\nChild process id :%d Parent process id :%d\n",
4 execl("/usr/bin/sort", "sort", "-r", "file2", NULL);
5 exit(0);
6 }
7 sleep(1);
27 fprintf(stderr, "\nParent process id :%d" getpid());
Child process id :7429 Parent process id :7410
6 }
5
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Parent process id :7410
```

```

q4.c
1 #include<stdio.h>
2 #include<unistd.h>
3 #include<stdbool.h>
4 int main() {
5     int length=10;
6     printf("Enter the length : ");
7     scanf("%d", &length);
8     int fibArray[length];
9     if(vfork()==0){
10         fibArray[0] = 0;
11         fibArray[1] = 1;
12         for (int i = 2; i < length; i++) {
13             fibArray[i]=fibArray[i-1]+fibArray[i-2];
14         }
15         _exit(0);
16     }
17     printf("\n");
18     printf("Fibonacci Series:\n");
19     for (int i = 0; i < length; i++) {
20         printf("%d ", fibArray[i]);
21     }
22     printf("\n");
23     printf("Prime Fibonacci numbers:\n");
24     for (int i = 3; i < length; i++) {
25         int isPrime = 1;
26         for (int j = 2; j * j ≤ fibArray[i]; j++) {
27             if (fibArray[i] % j == 0)
28                 isPrime = 0;
29         }
30         if (isPrime)
31             printf("%d at index : %d \n", fibArray[i],i);
32     }
33     return 0;
34 }

```

```

(munu@kali)-[~]
$ gcc q4.c

(munu@kali)-[~]
$ ./a.out
Enter the length : 10

Fibonacci Series:
0 1 1 2 3 5 8 13 21 34
Prime Fibonacci numbers:
2 at index : 3
3 at index : 4
5 at index : 5
13 at index : 7

```

