Problem-01:

A counting semaphore S is initialized to 10. Then, 6 P operations and 4 V operations are performed on S. What is the final value of S?

Solution-

We know-

- P operation also called as wait operation decrements the value of semaphore variable by 1.
- V operation also called as signal operation increments the value of semaphore variable by 1.

Thus,

Final value of semaphore variable S

= 10 – (6 x 1) + (4 x 1)
= 10 – 6 + 4

= 8

Problem-02:

A counting semaphore S is initialized to 7. Then, 20 P operations and 15 V operations are performed on S. What is the final value of S?

Solution-

We know-

- P operation also called as wait operation decrements the value of semaphore variable by 1.
- V operation also called as signal operation increments the value of semaphore variable by 1.

Thus,

Final value of semaphore variable S

= 7 – (20 x 1) + (15 x 1)

= 7 – 20 + 15

= 2

Problem 03: For process P1, P2, P3, P4, P5 How many time the following function print “Semaphore”.

In case if Int s=0; s=1;

```
Do
{
wait (S);
        {
        While(s<=0);
                {
                s=s-1;
                Printf(“Semaphore”);
                }
signal(s);
        {
        s=s+1;
        }
}
```

Solution : in case of S=0; no message is printed

In case of S=1; according to the no of process the message will print