

```
$Title ProductionInventory
```

Sets

```
T      /t1*t7/  
;
```

Parameters

```
A  
c(t)  
h  
b  
U  
cap  
d(t)  
;
```

```
A  = 100;  
c(t)= uniform(5,10);  
h  = 2;  
b  = 1.5;  
U  = 200;  
cap = 100;  
d(t) = uniform(100,300);  
;
```

```
*****
```

Free Variable

```
Z;
```

Binary Variables

```
x(t)  
;
```

Positive Variable

```
Q(t)  
I(t)  
L(t)  
;  
*L.fx('t7')=0;  
L.fx(t)$ (ord(t)=card(t))=0;
```

Equations

```
obj  
cons1  
cons2  
cons3  
;
```

```
obj..      z =e=  sum(t,A*x(t) + c(t)*Q(t) + h*I(t) + b*L(t)) ;
```

```
cons1(t)..      Q(t) =L= U*x(t);
```

```
Alias(t,tp);
```

```
cons2(t)..      Q(t) + I(t-1) =e= d(t)+sum(tp$(ord(tp)<ord(t)),L(tp)) + I(t) - L(t) ;  
* this cos. should de revised.
```

```
cons3(t)..      I(t) =l= cap;
```

```
Model ProductionInventory
```

```
/  
obj  
cons1  
cons2  
cons3  
/  
;
```

```
Options
```

```
MIP = CPLEX  
reslim =100  
*maximum run time (sec.)  
optcr = 0  
;
```

```
Solve ProductionInventory us MIP min Z;
```

```
Display
```

```
Z.1  
x.1  
Q.1  
d  
I.1  
L.1
```

The logo for OR (Operations Research) features the letters 'OR' in a serif font inside a white circle, which is set against a blue gear-like background.The OptimYar logo consists of a stylized blue 'Y' shape with a white outline, positioned above the word 'OptimYar' in a bold, blue, sans-serif font.