

# MA374 lab 2 report

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140123010

Q1)

The initial call option value for the u, d set 1 is : 12.085380

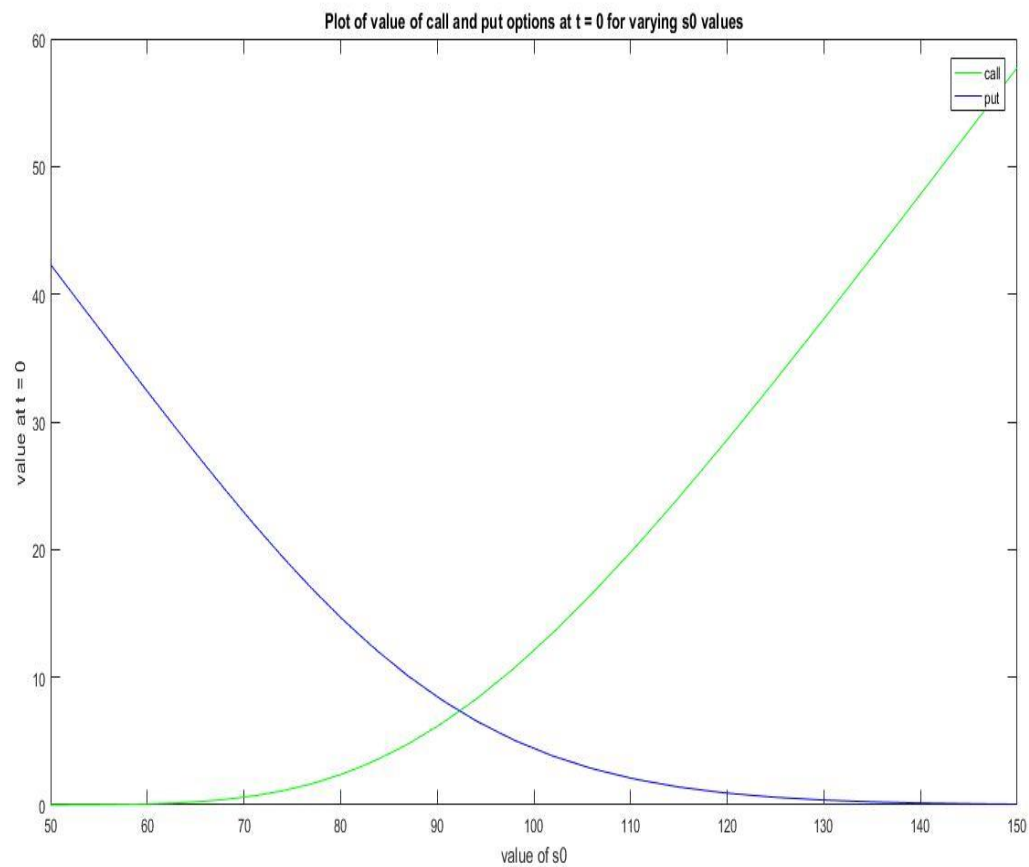
The initial put option value for the u, d set 1 is : 4.397015

The initial call option value for the u, d set 2 is : 12.123047

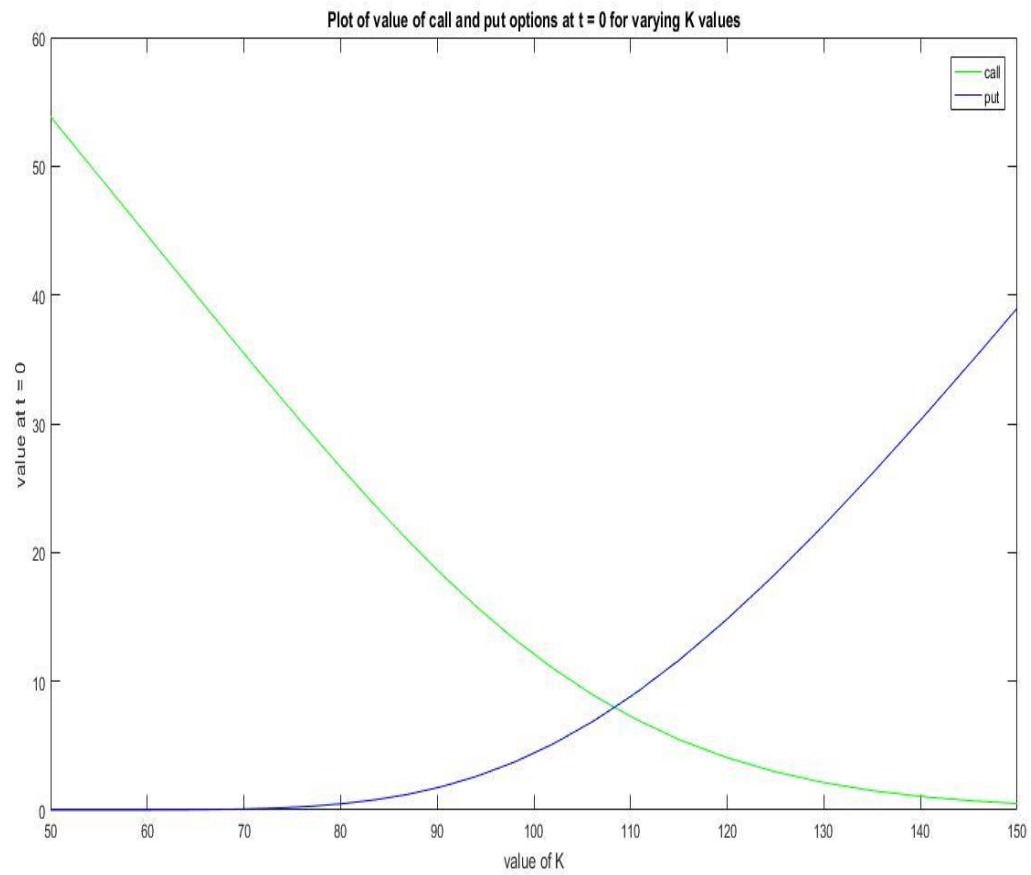
The initial put option value for the u, d set 2 is : 4.434682

U, d set 1 plots :

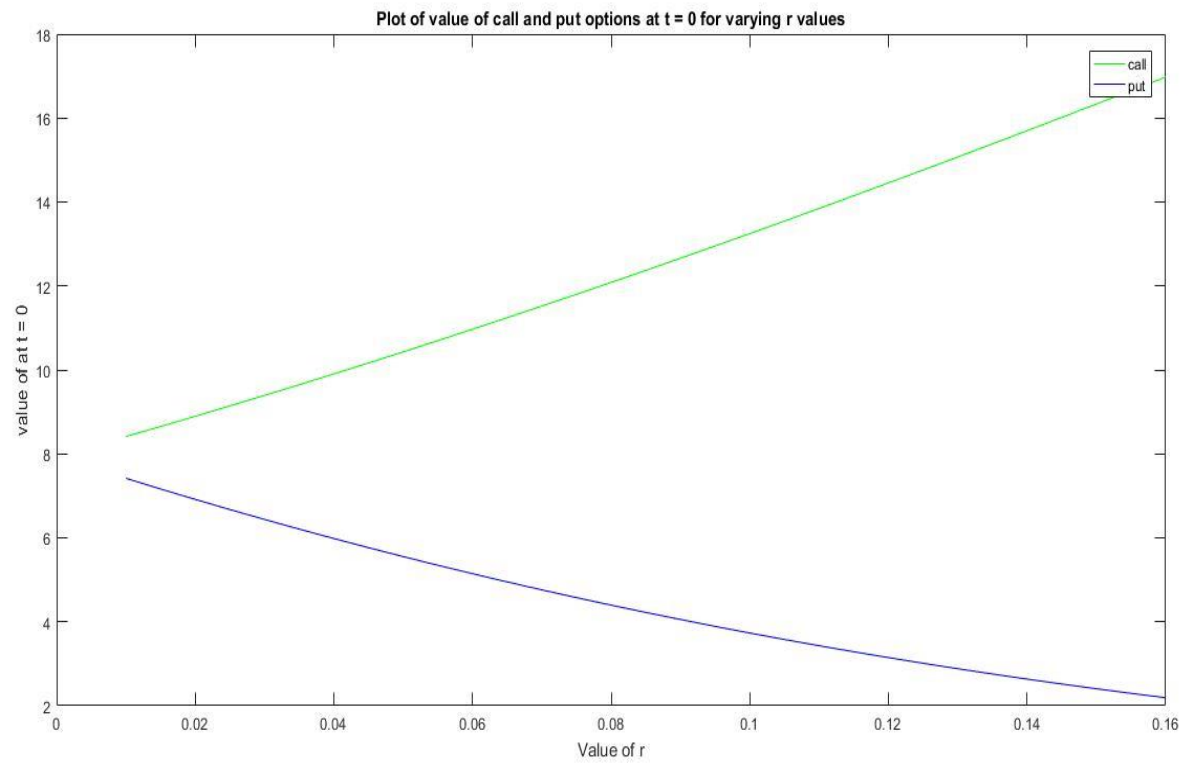
Plot of call and put option values at  $t = 0$  obtained by changing  $S(0)$  value from 50 – 150 is



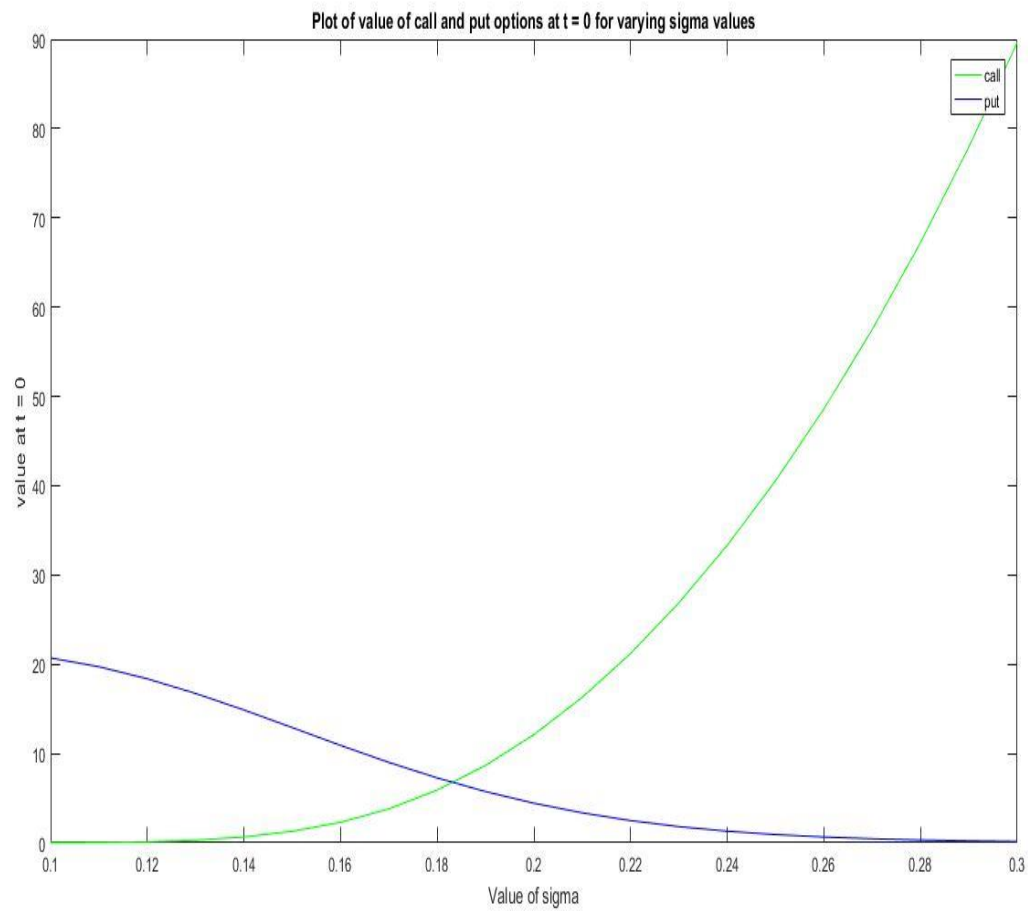
Plot of call and put option values at  $t = 0$  obtained by varying  $K$  value from 50 – 150 is



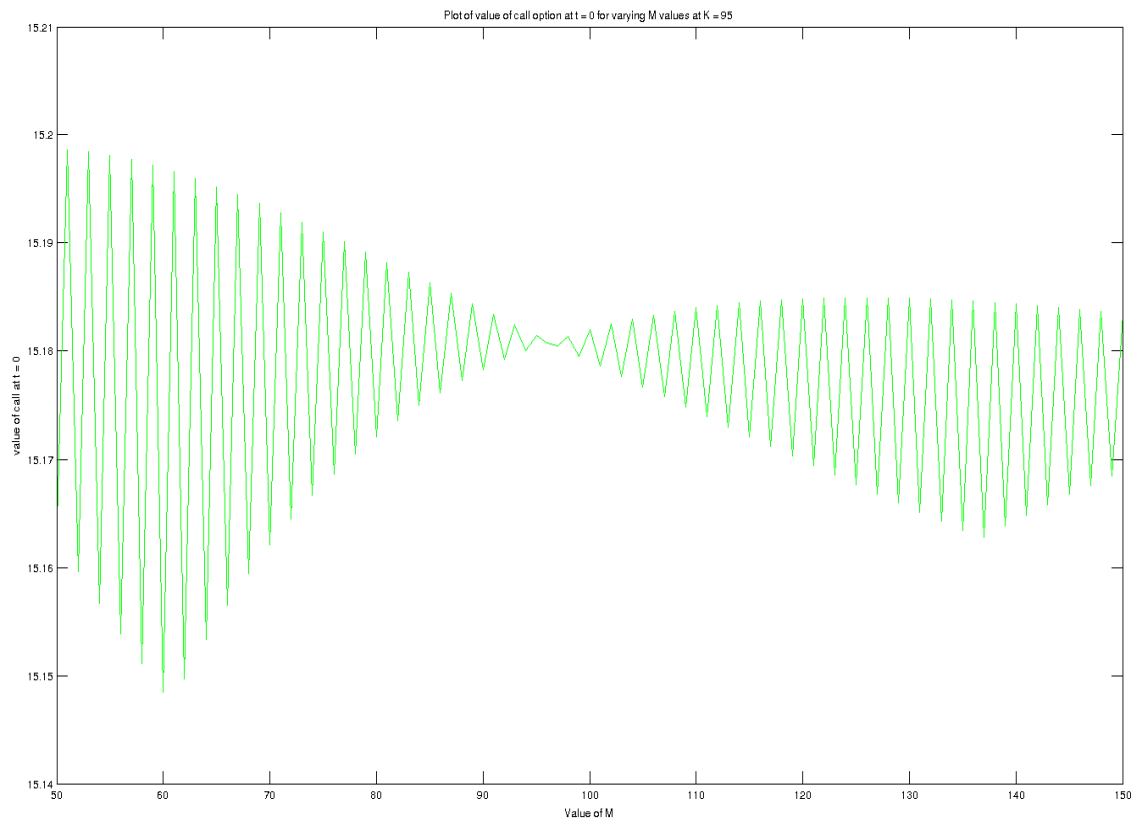
Plot of call and put option values at  $t = 0$  obtained by changing  $r$  from 0.01 – 0.16 is



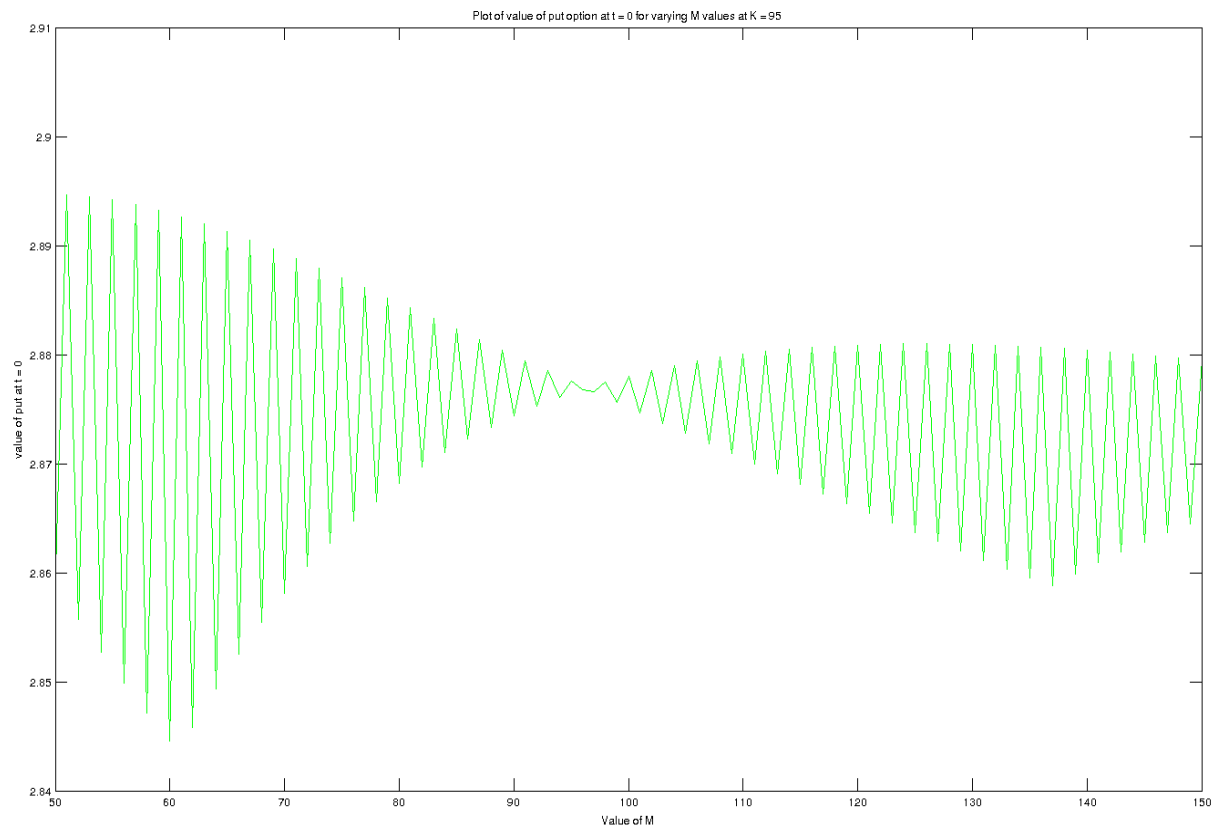
Plot of call and put option values at  $t = 0$  obtained by changing sigma from 0.1 – 0.3 is



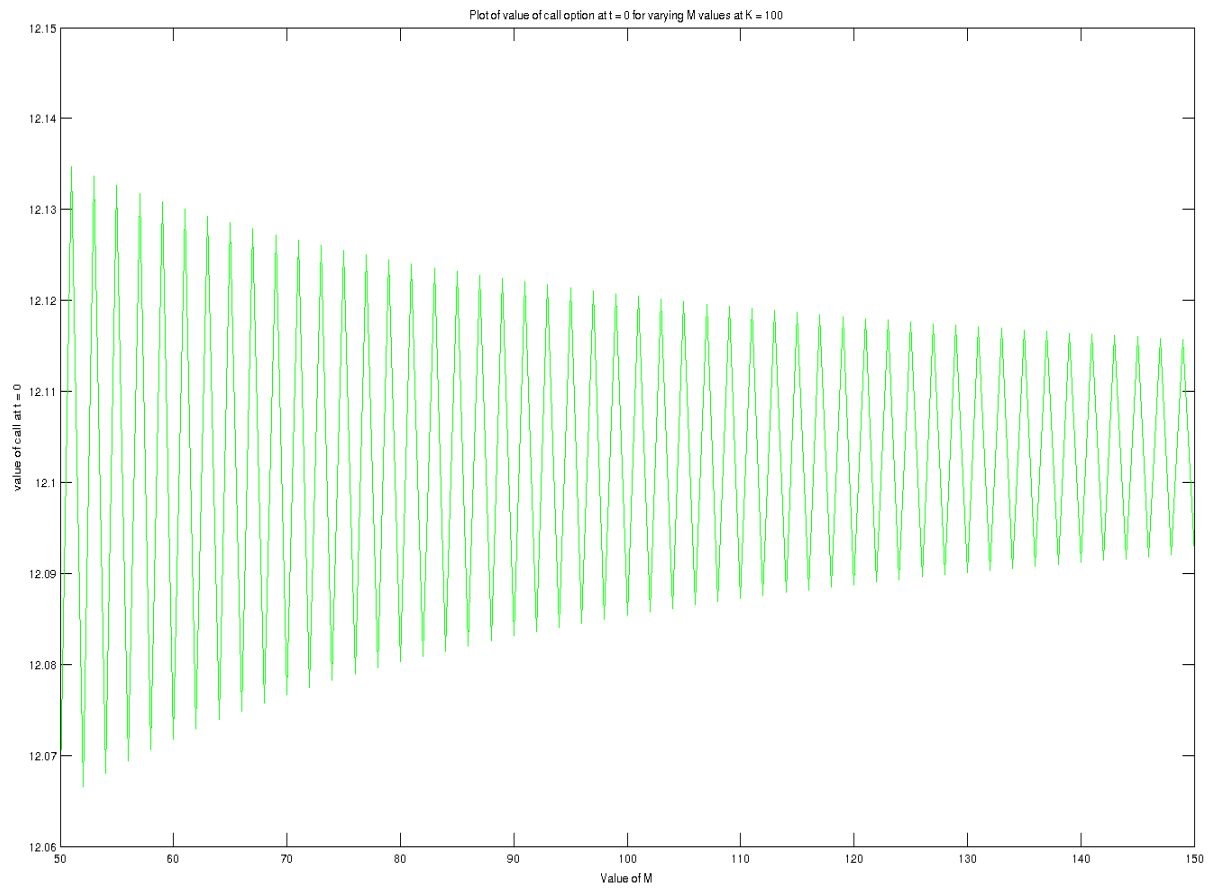
Plot of call option values at  $t = 0$  obtained by changing  $M$  from 50 – 150 for  $K = 95$  is



Plot of put option values at  $t = 0$  obtained by changing  $M$  from 50 – 150 for  $K = 95$  is

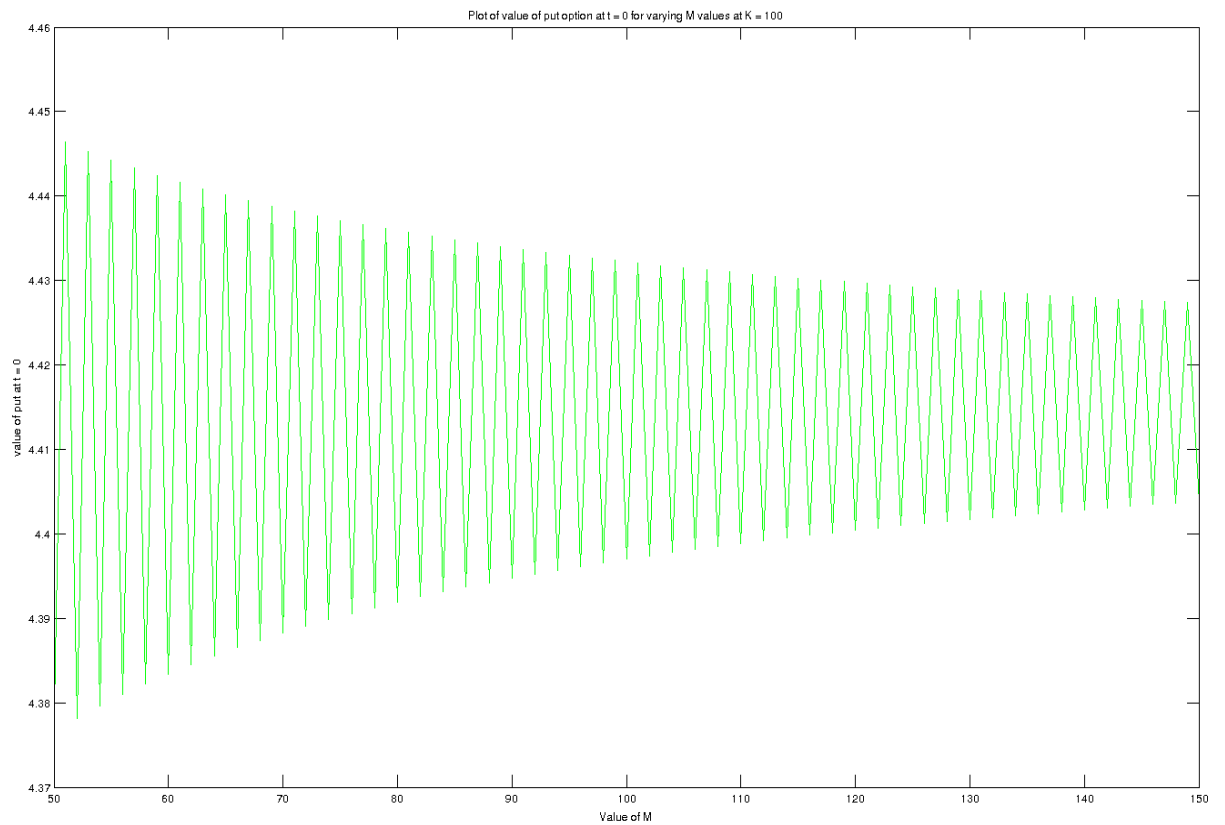


Plot of call option values at  $t = 0$  obtained by changing  $M$  from 50 – 150 for  $K = 100$  is

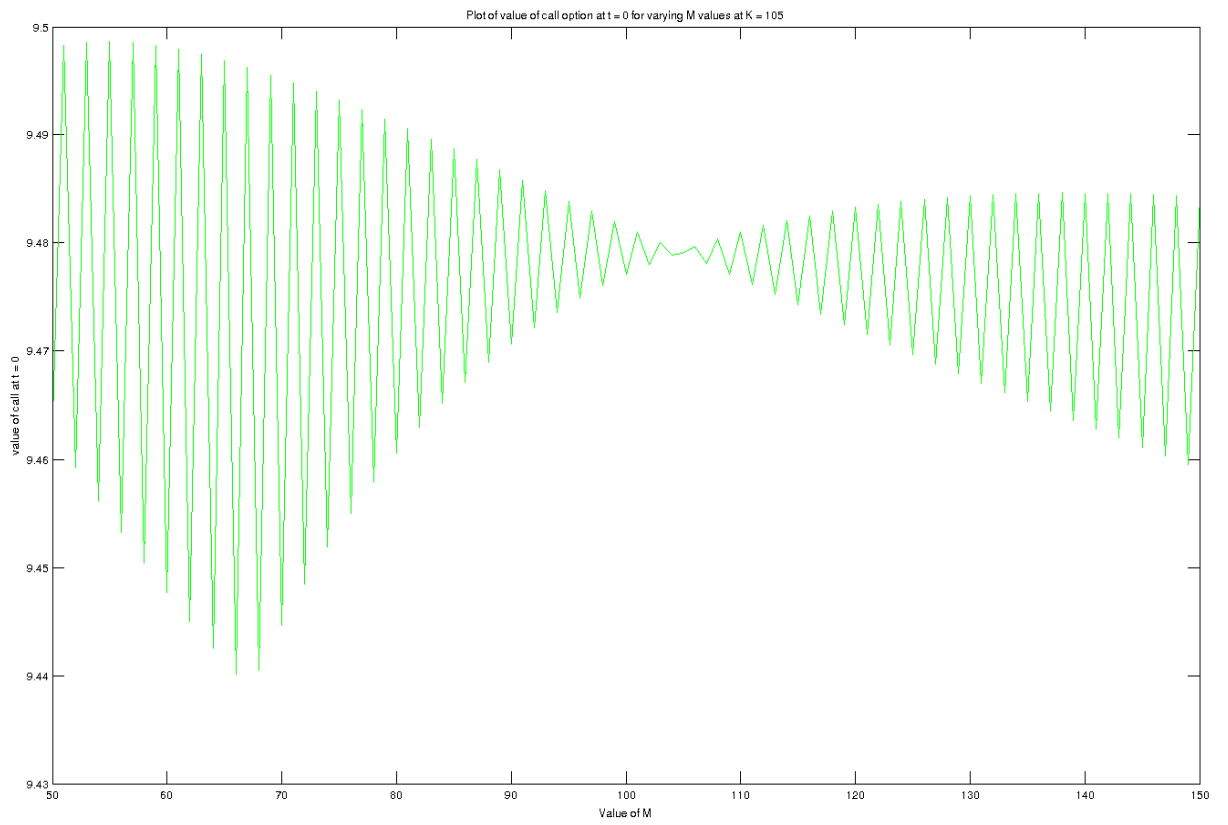




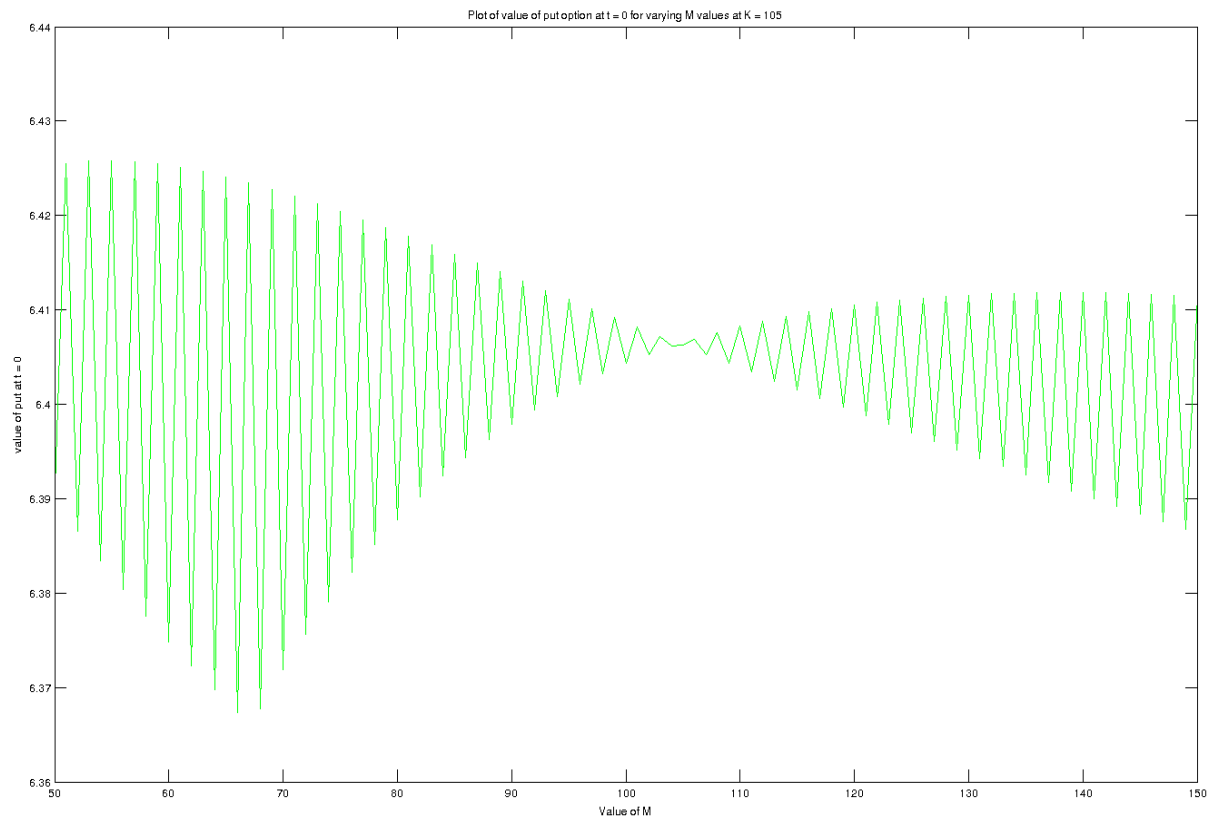
Plot of put option values at  $t = 0$  obtained by changing  $M$  from 50 - 150 for  $K = 100$  is



Plot of call option values at  $t = 0$  obtained by changing  $M$  from 50 – 150 for  $K = 105$  is

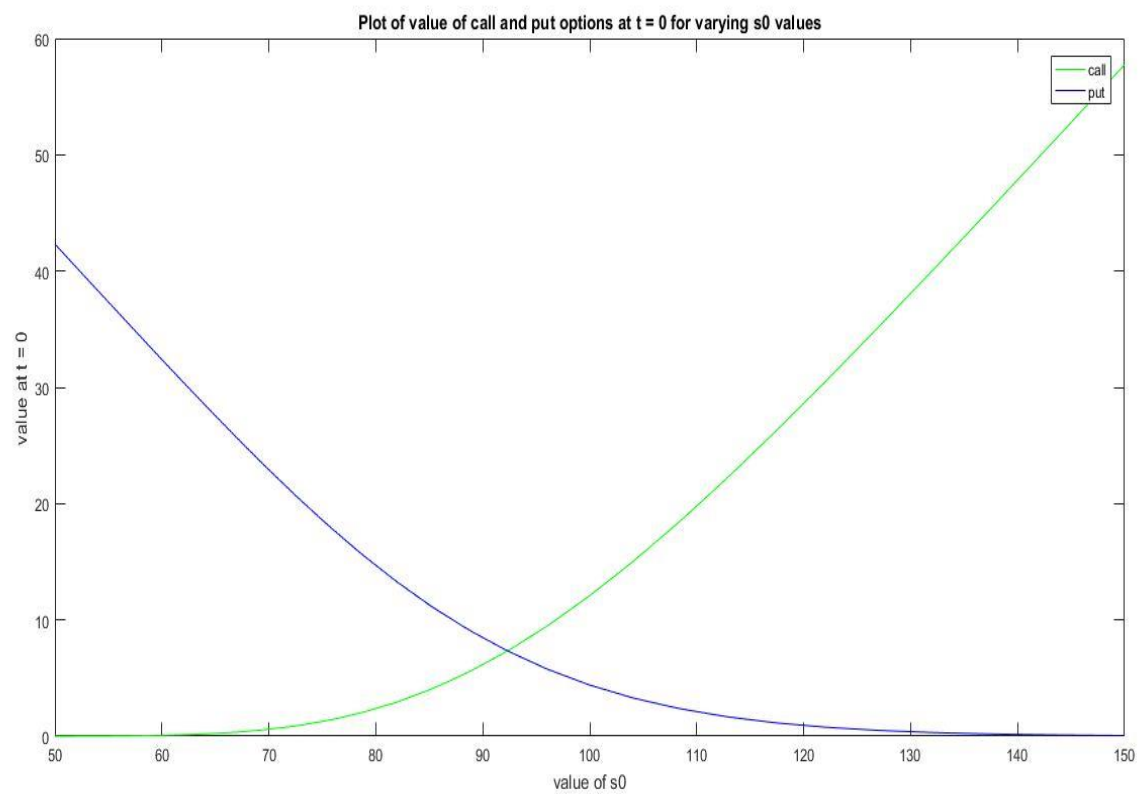


Plot of put option values at  $t = 0$  obtained by changing  $M$  from 50 – 150 for  $K = 105$  is

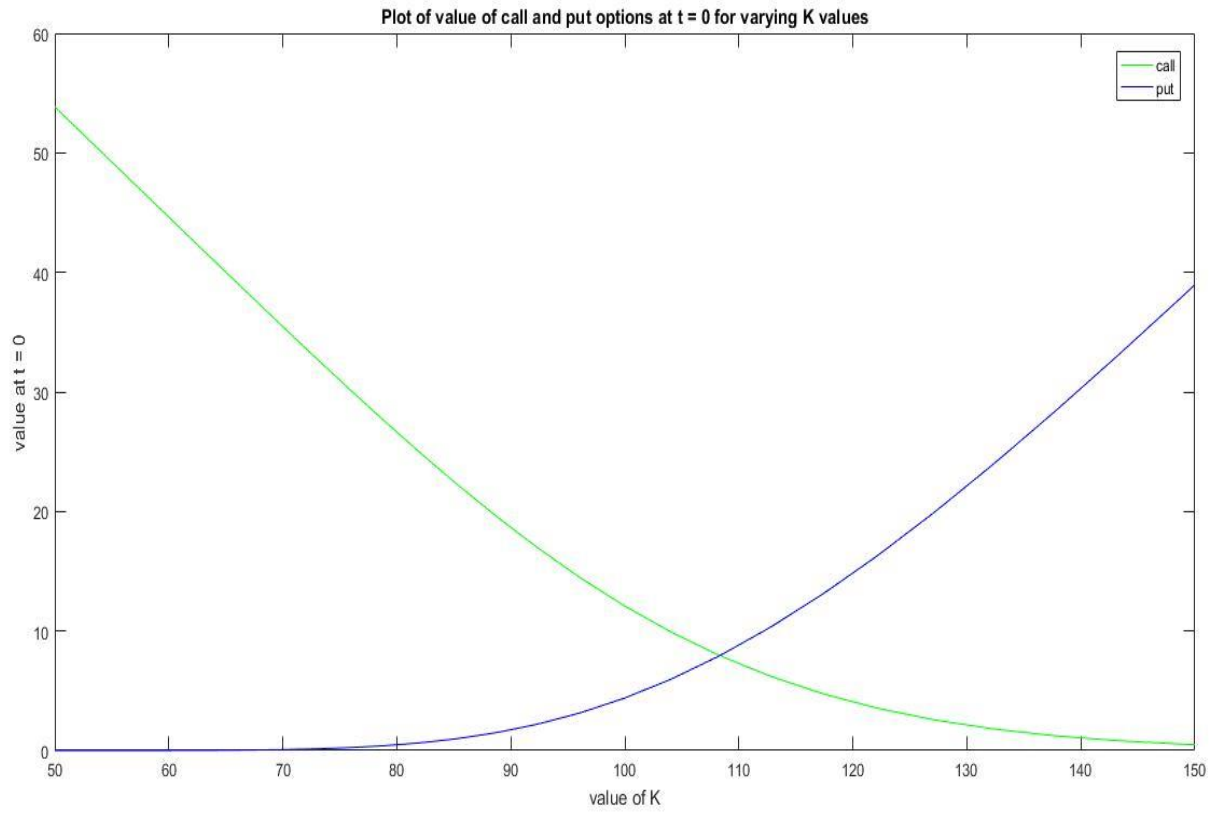


U, d set 2 plots :

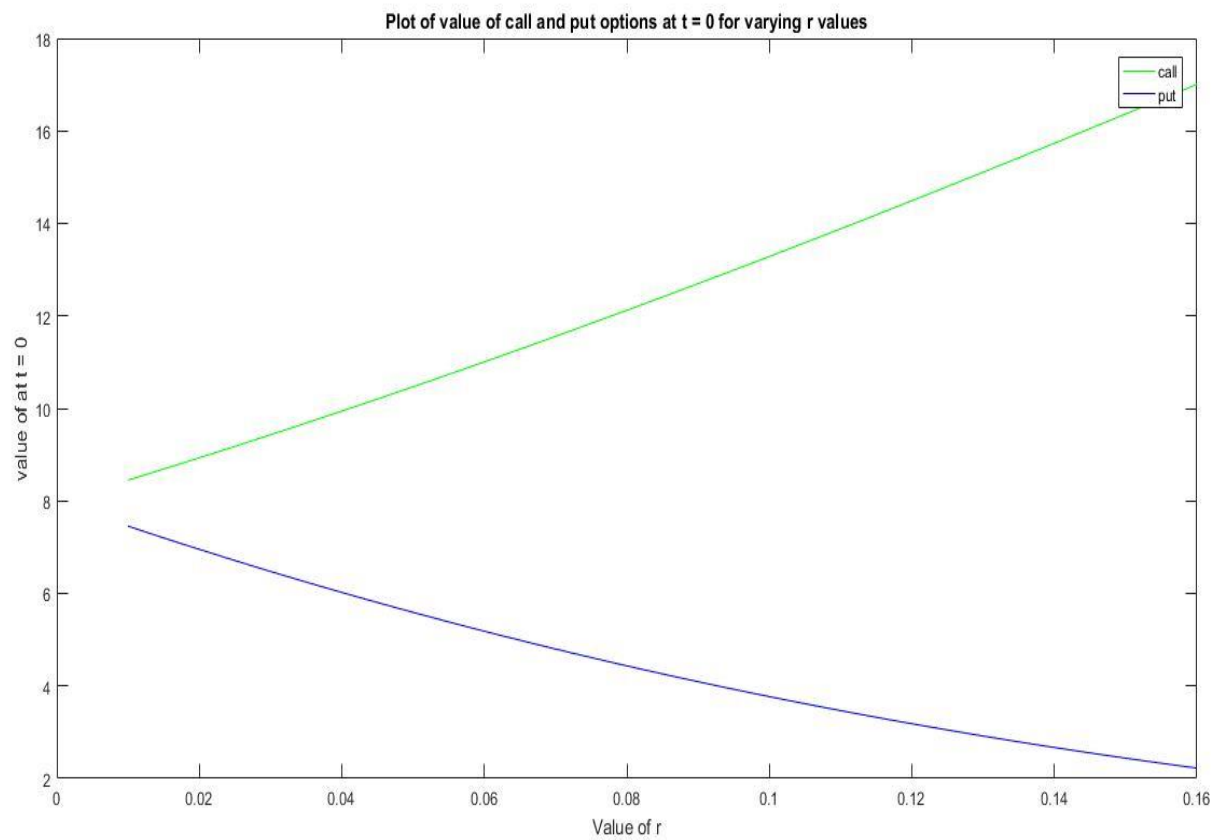
Plot of call and put option values at  $t = 0$  obtained by changing  $S(0)$  from 50 – 150 is



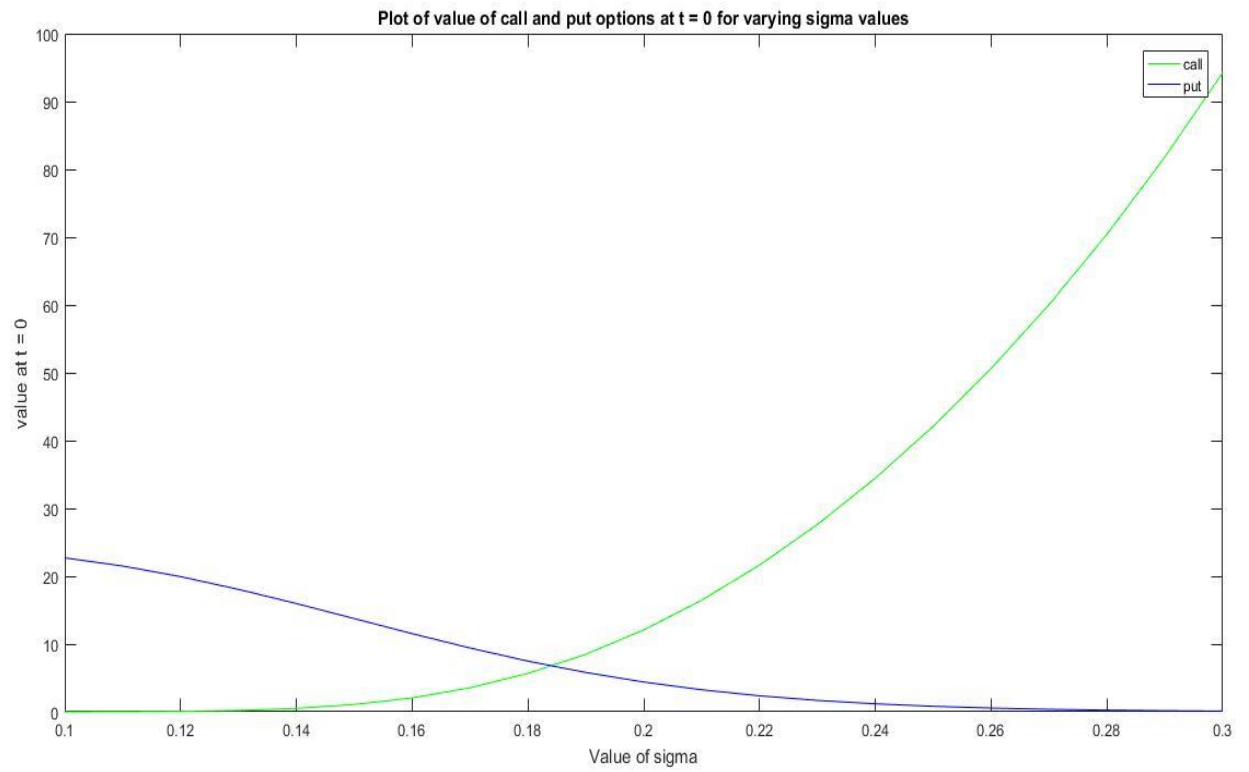
Plot of call and put option values at  $t = 0$  obtained by changing  $K$  from 50 – 150 is



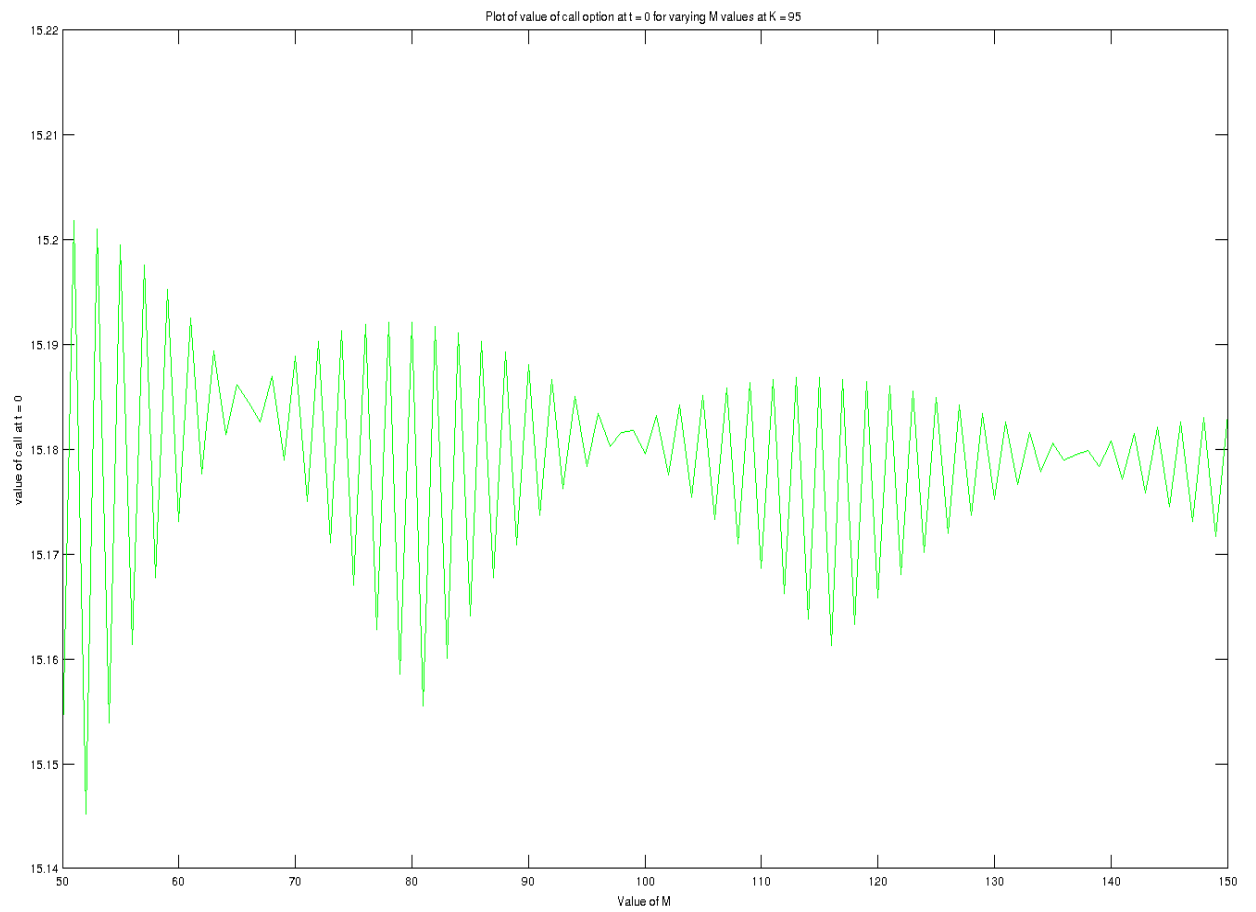
Plot of call and put option values at  $t = 0$  obtained by changing  $r$  from 0.01 – 0.16 is



Plot of call and put option values at  $t = 0$  obtained by changing sigma from 0.1 – 0.3 is

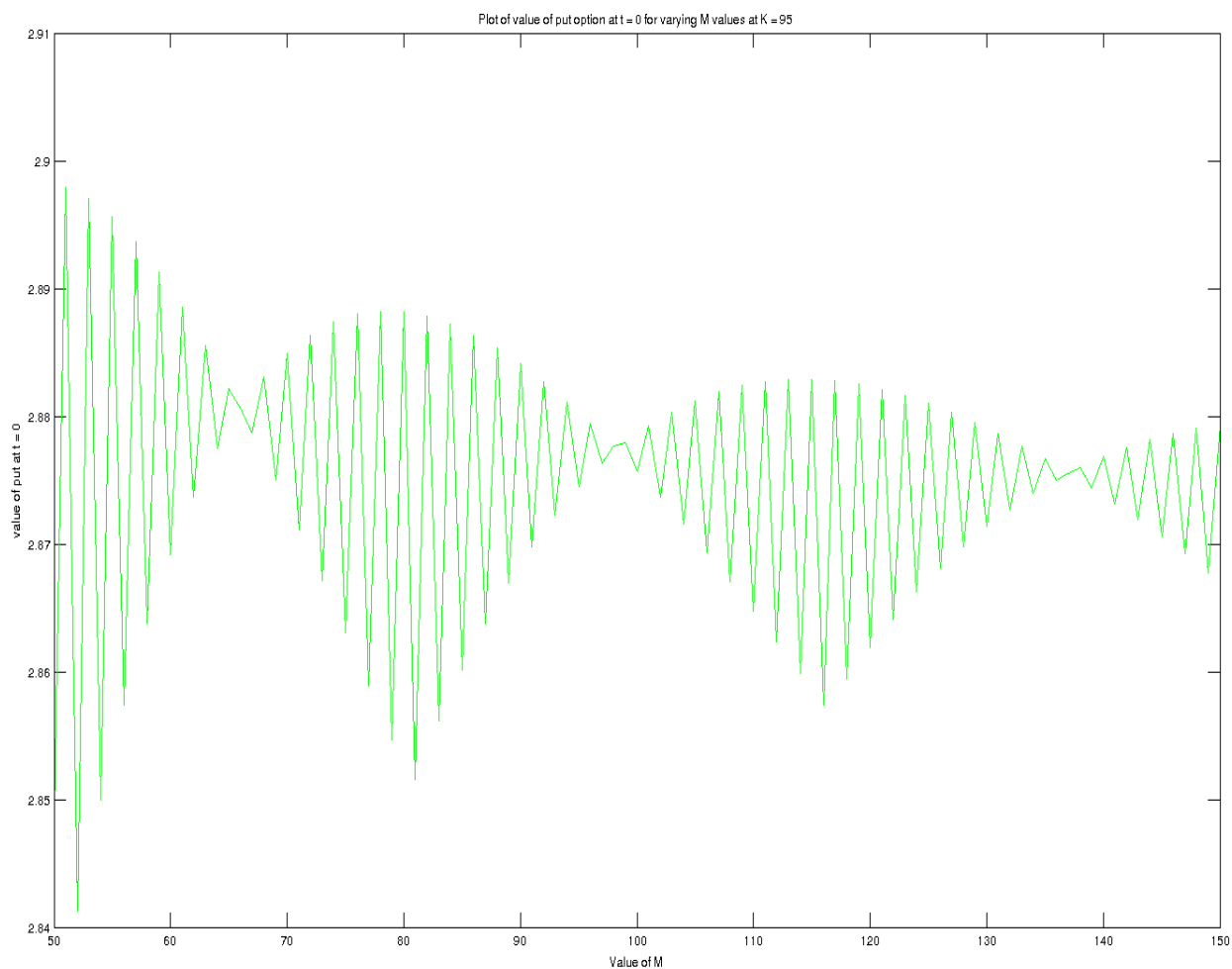


Plot of call option values at  $t = 0$  obtained by changing  $M$  from 50 – 150 for  $K = 95$  is

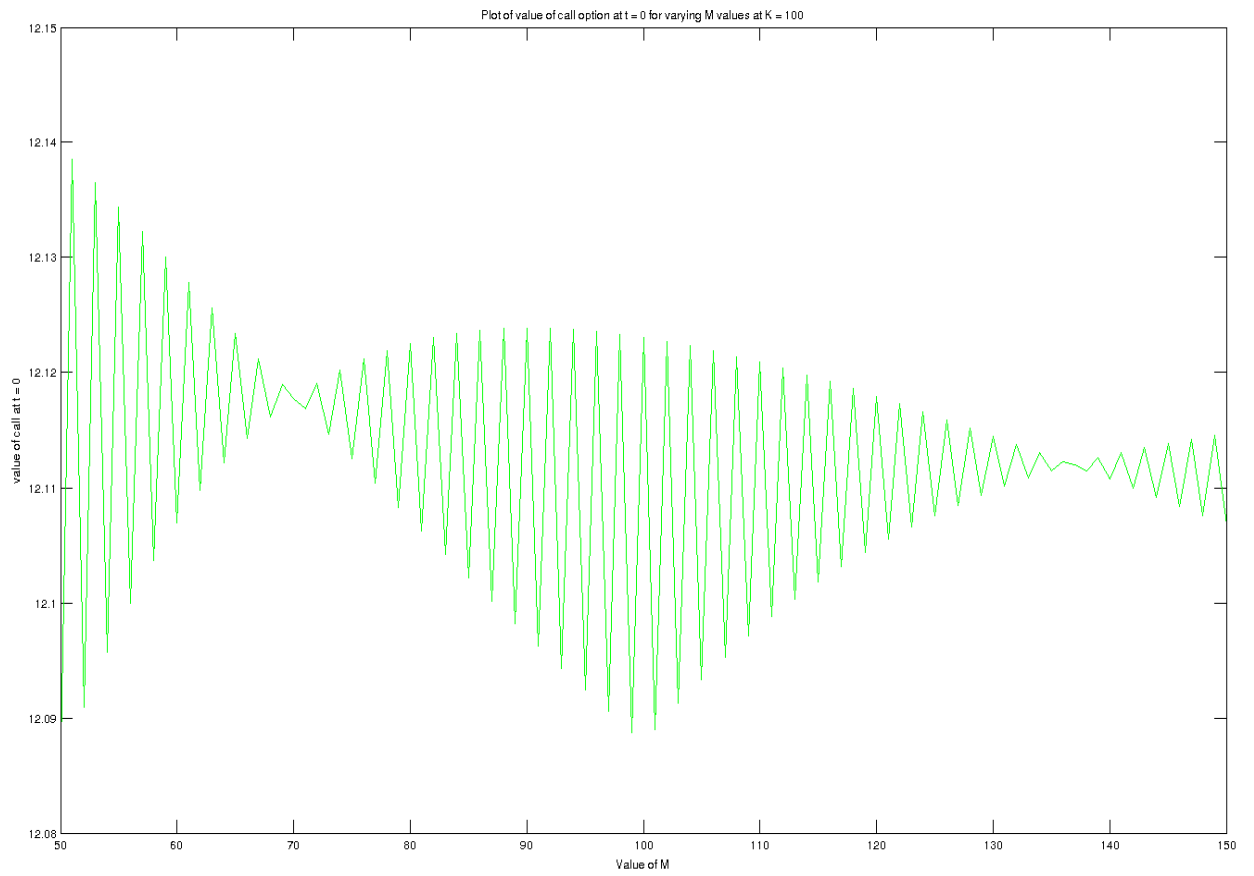




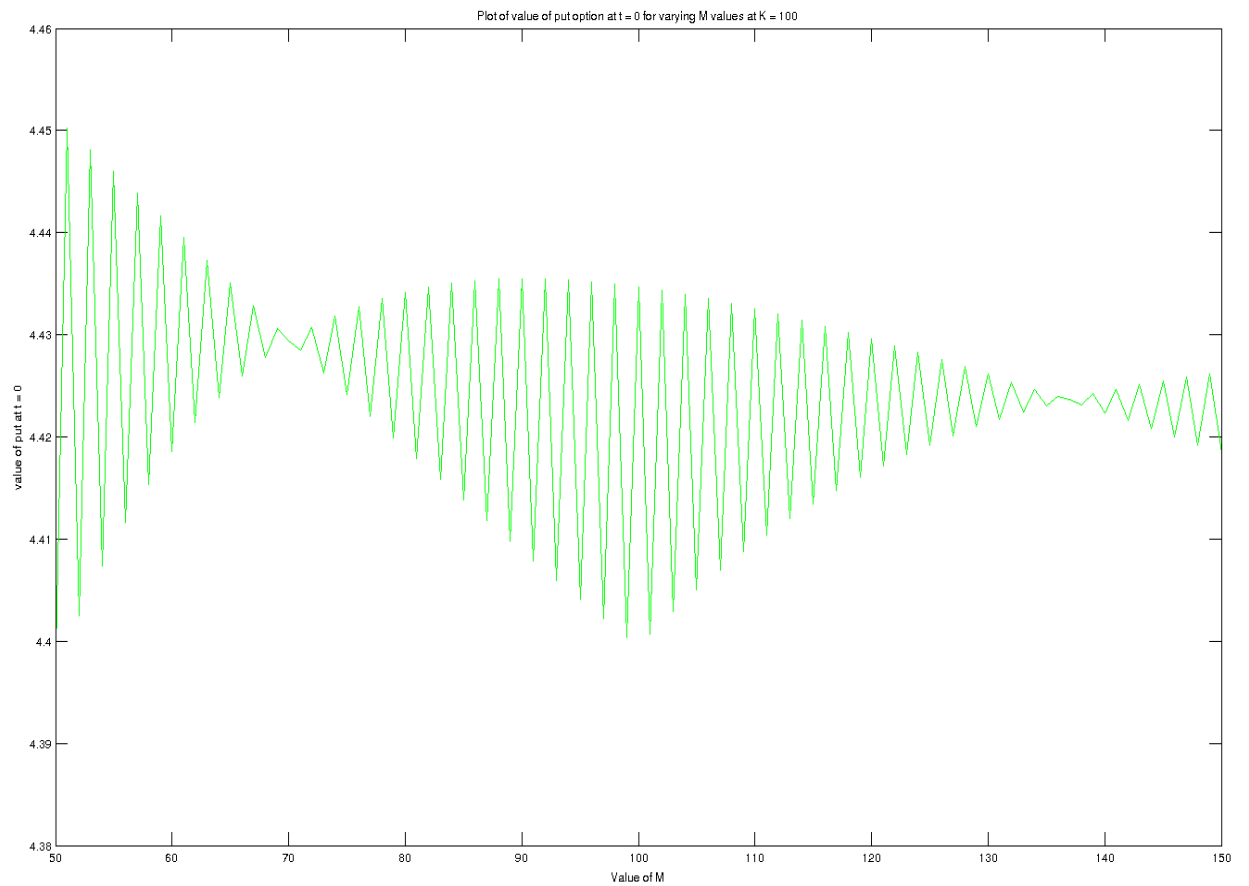
Plot of put option values at  $t = 0$  obtained by changing  $M$  from 50 – 150 for  $K = 95$  is



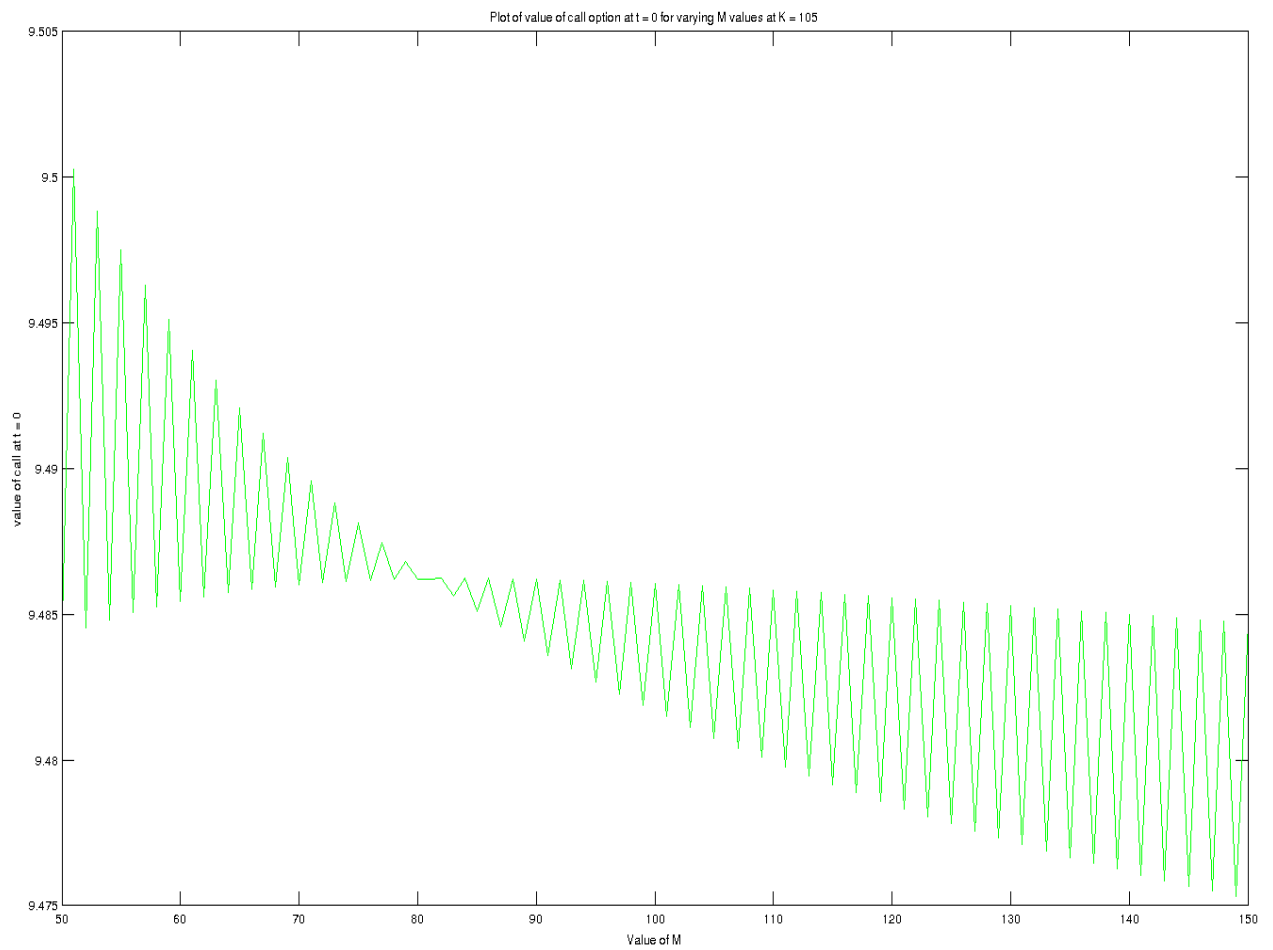
Plot of call option values at  $t = 0$  obtained by changing  $M$  from 50 – 150 for  $K = 100$  is



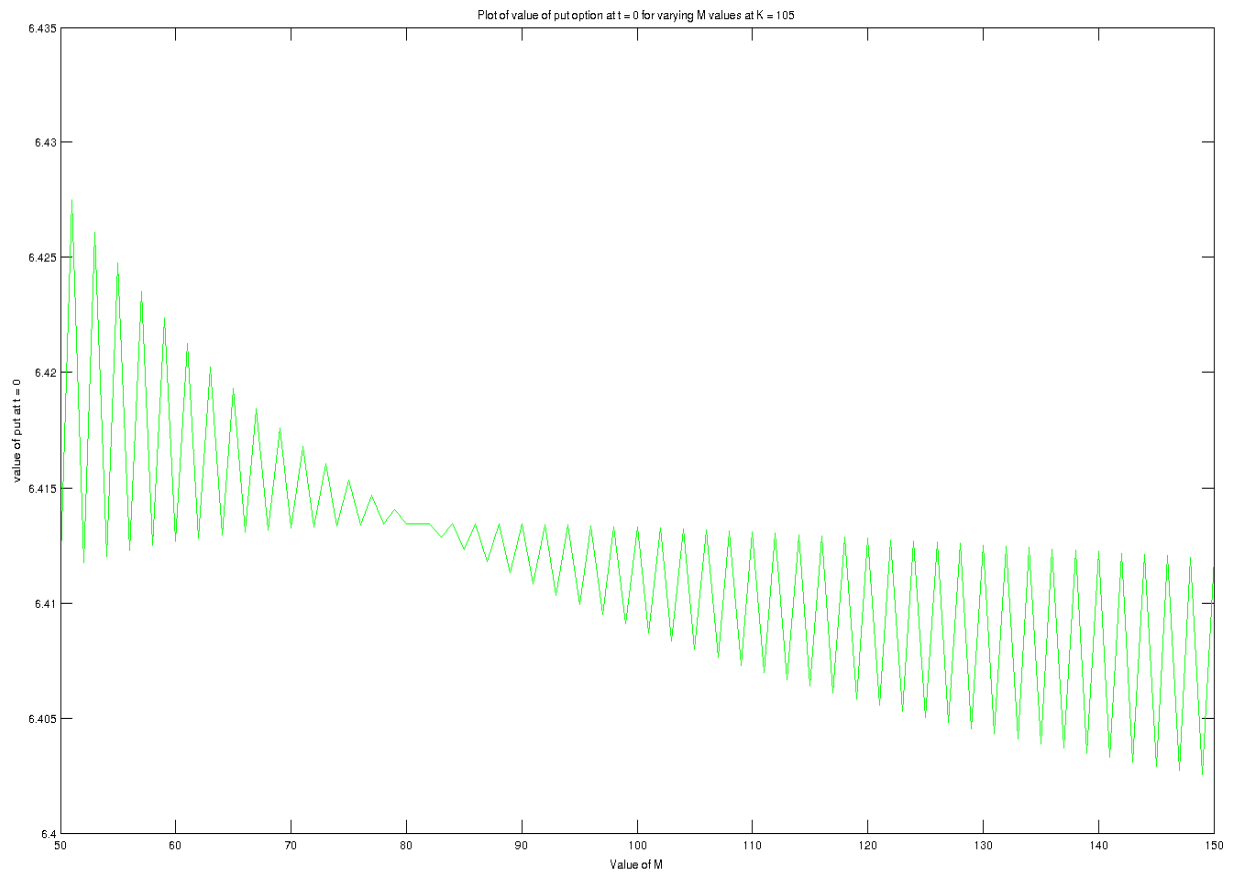
Plot of put option values at  $t = 0$  obtained by changing  $M$  from 50 – 150 for  $K = 100$  is



Plot of call option values at  $t = 0$  obtained by changing  $M$  from 50 – 150 for  $K = 105$  is



Plot of put option values at  $t = 0$  obtained by changing  $M$  from 50 – 150 for  $K = 105$  is



Q2)

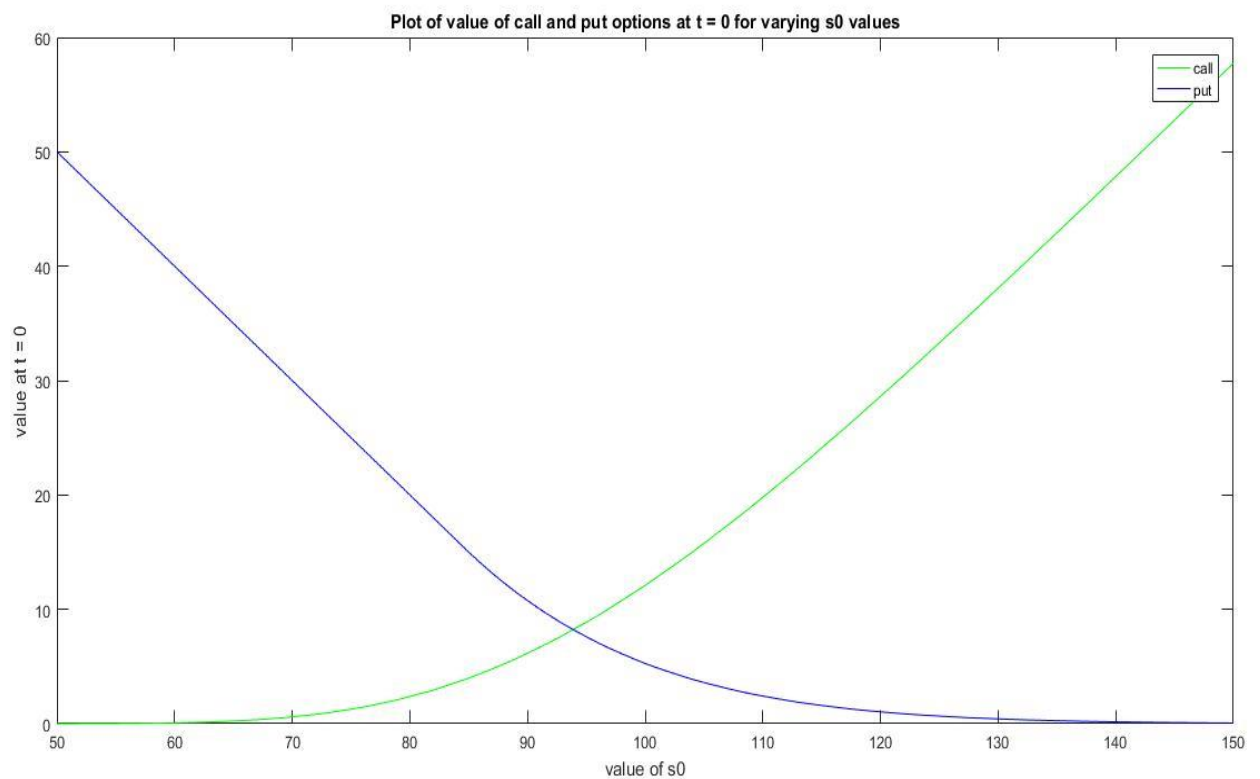
I took American option as the path dependent option here and  $u, d$  set 1.

The value of call option at  $t = 0$  is : 12.085380

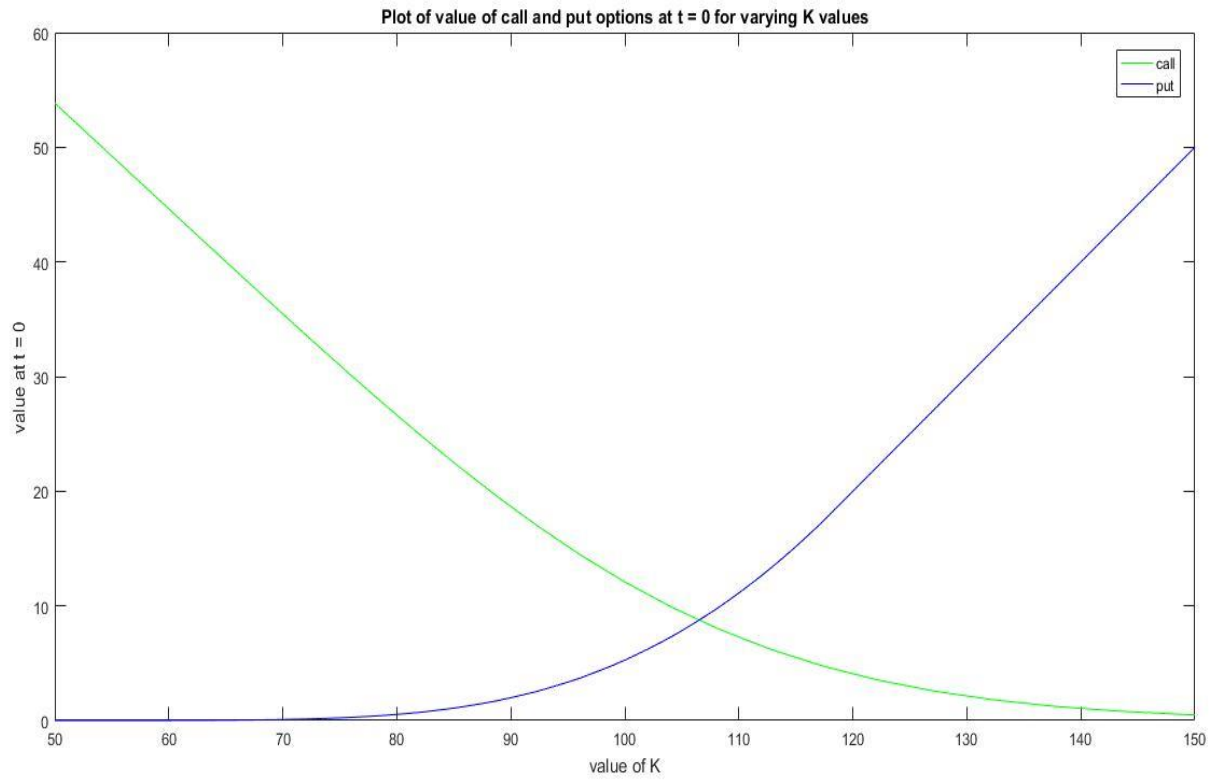
The value of put option at  $t = 0$  is : 5.266748

## Plots :

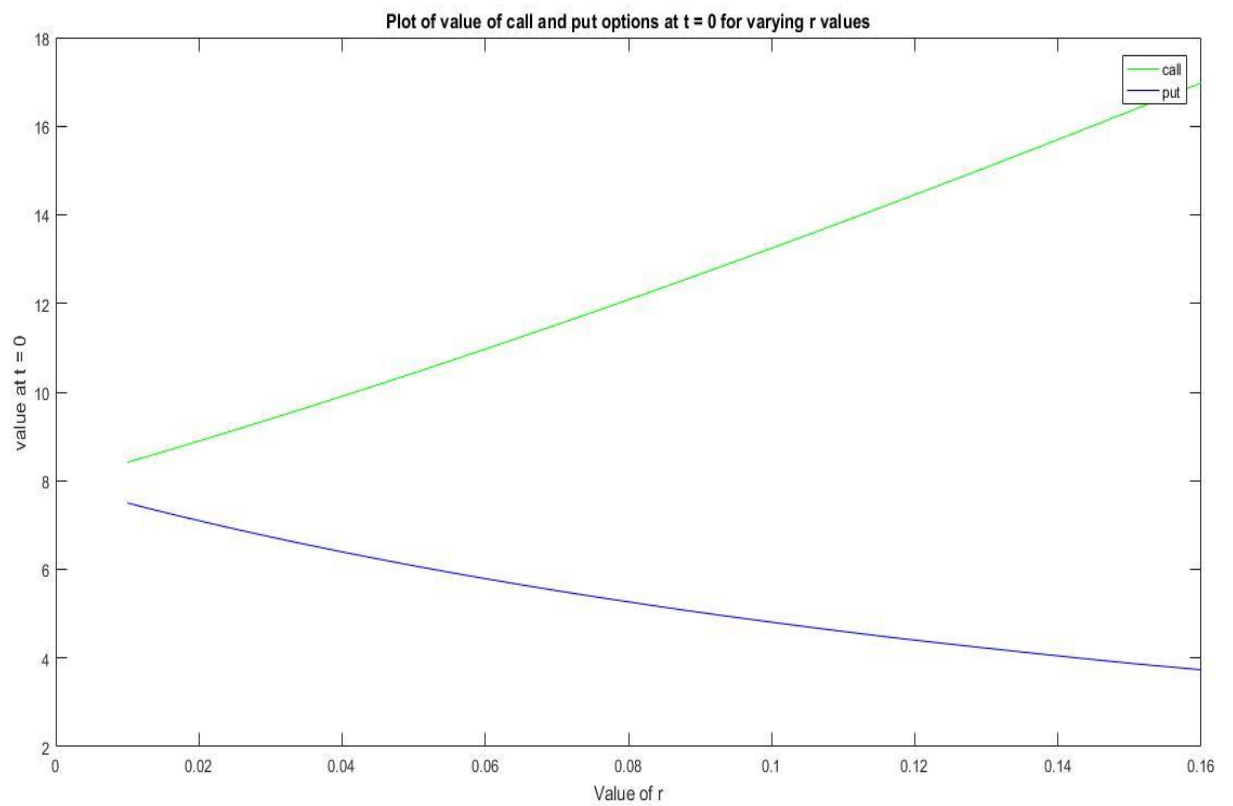
Plot of call and put option values at  $t = 0$  obtained by changing  $S(0)$  from 50 – 150 is



Plot of call and put option values at  $t = 0$  obtained by changing  $K$  from 50 – 150 is

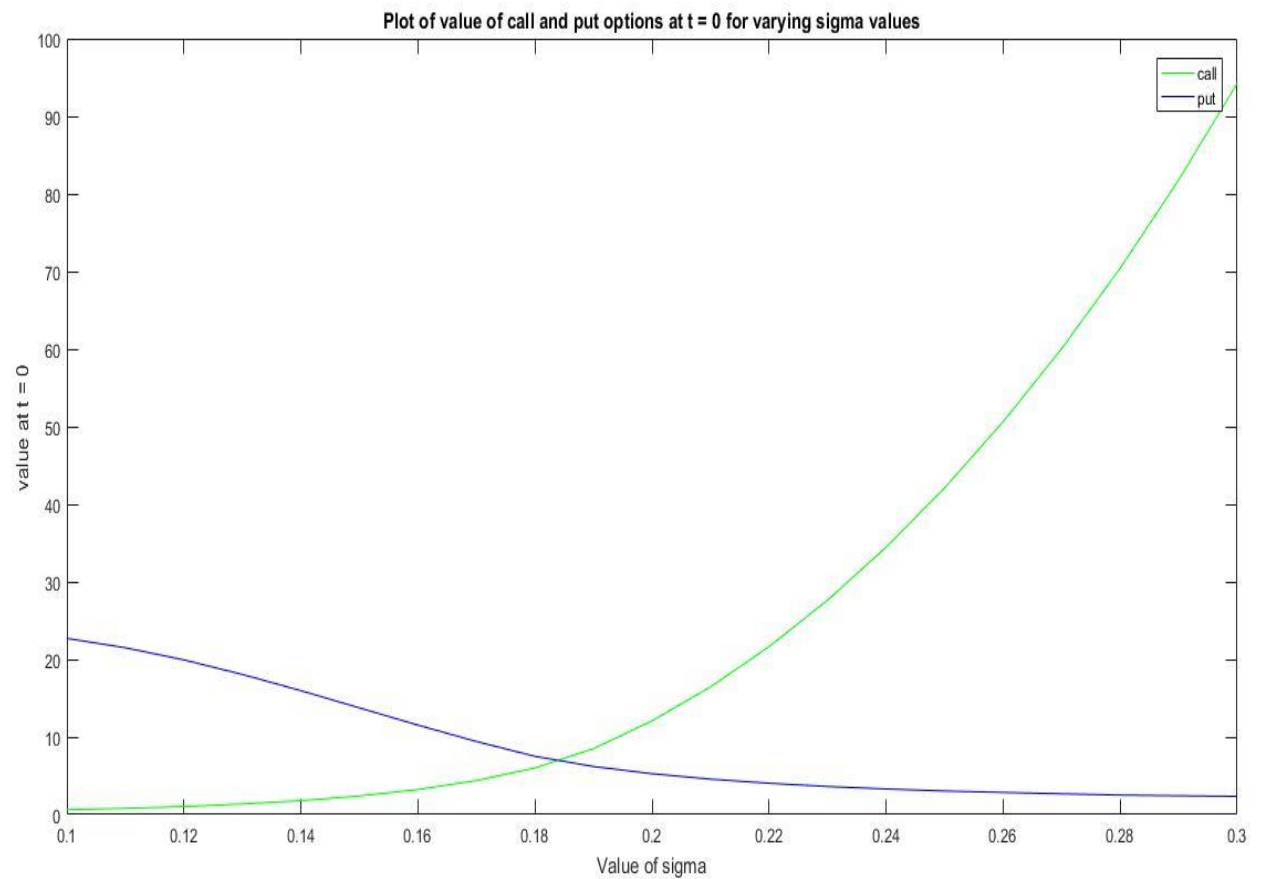


Plot of call and put option values at  $t = 0$  obtained by changing  $r$  from 0.01 – 0.16 is

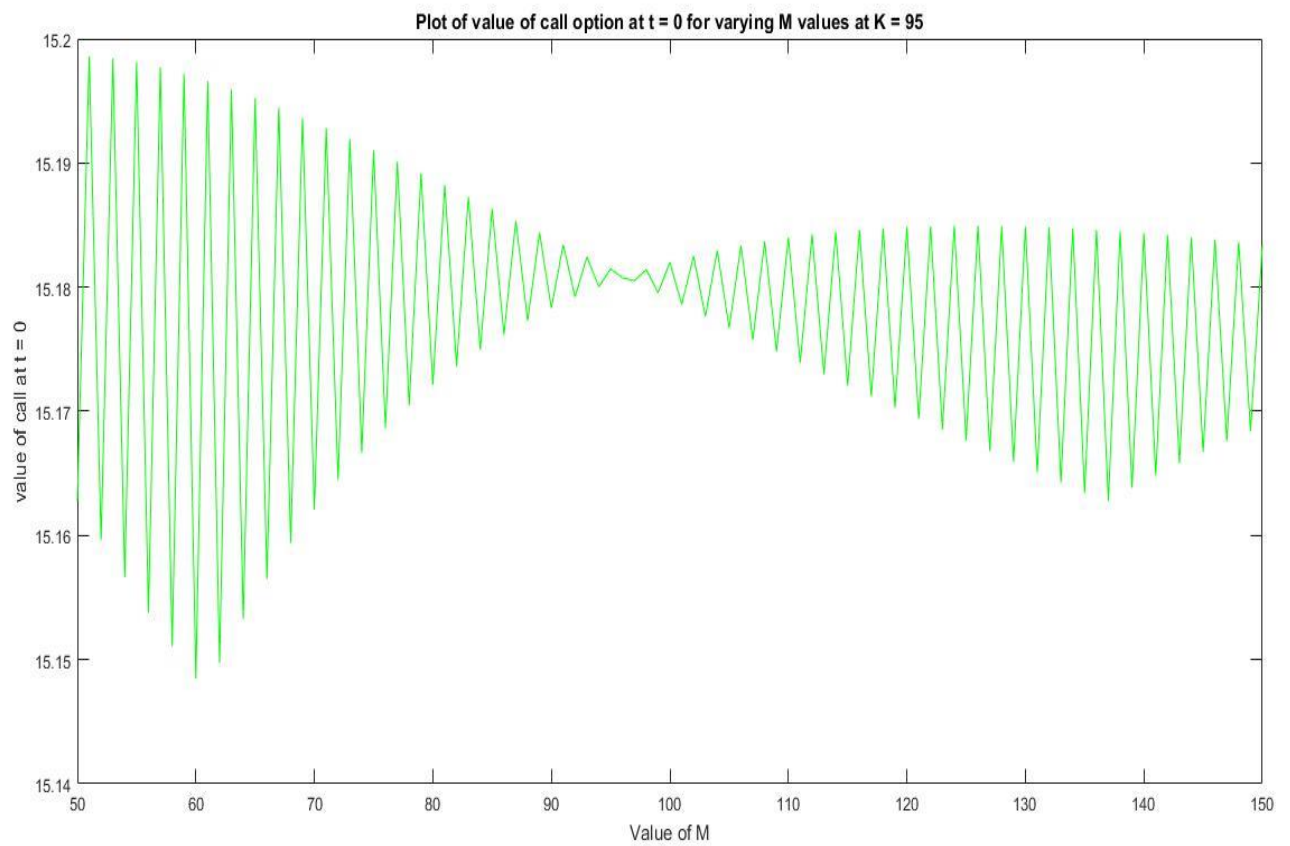




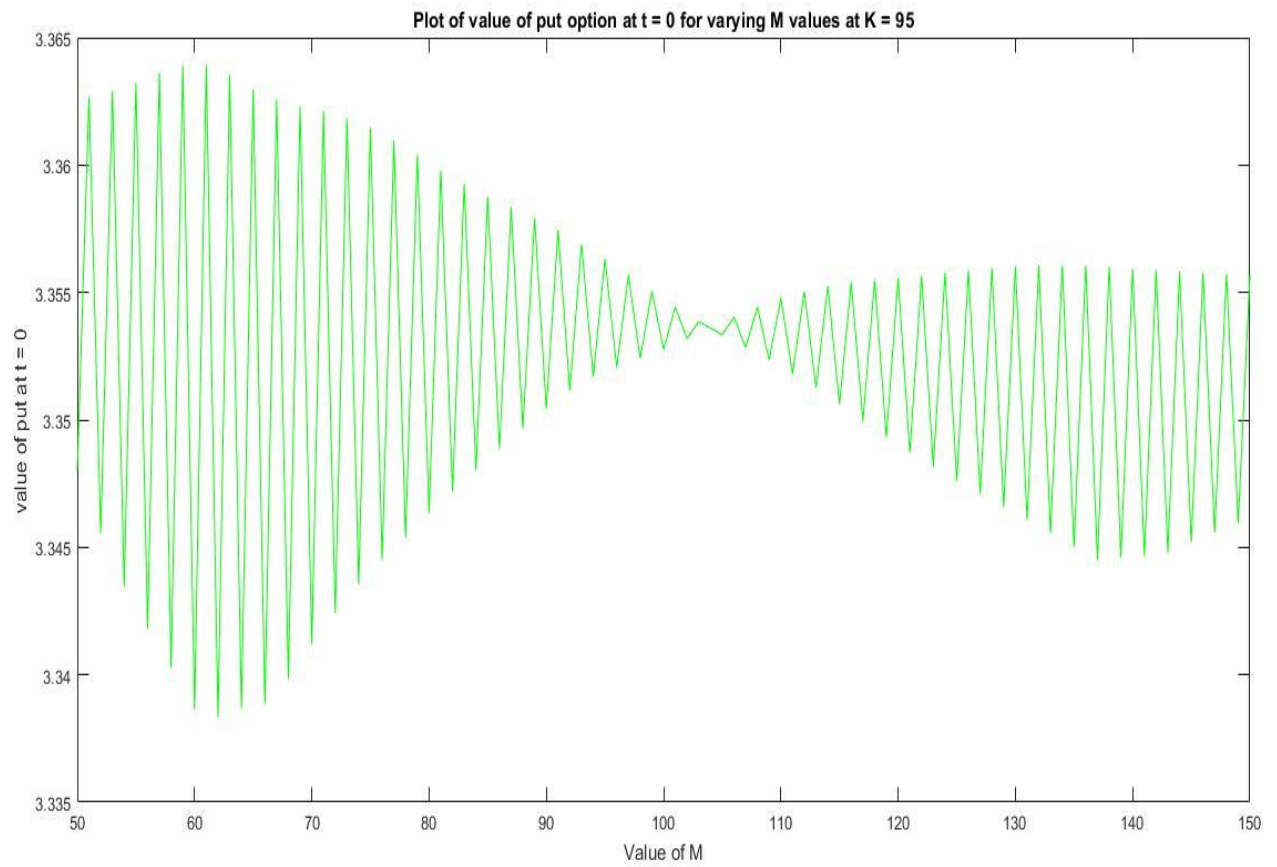
Plot of call and put option values at  $t = 0$  obtained by changing sigma from 0.1 – 0.3 is



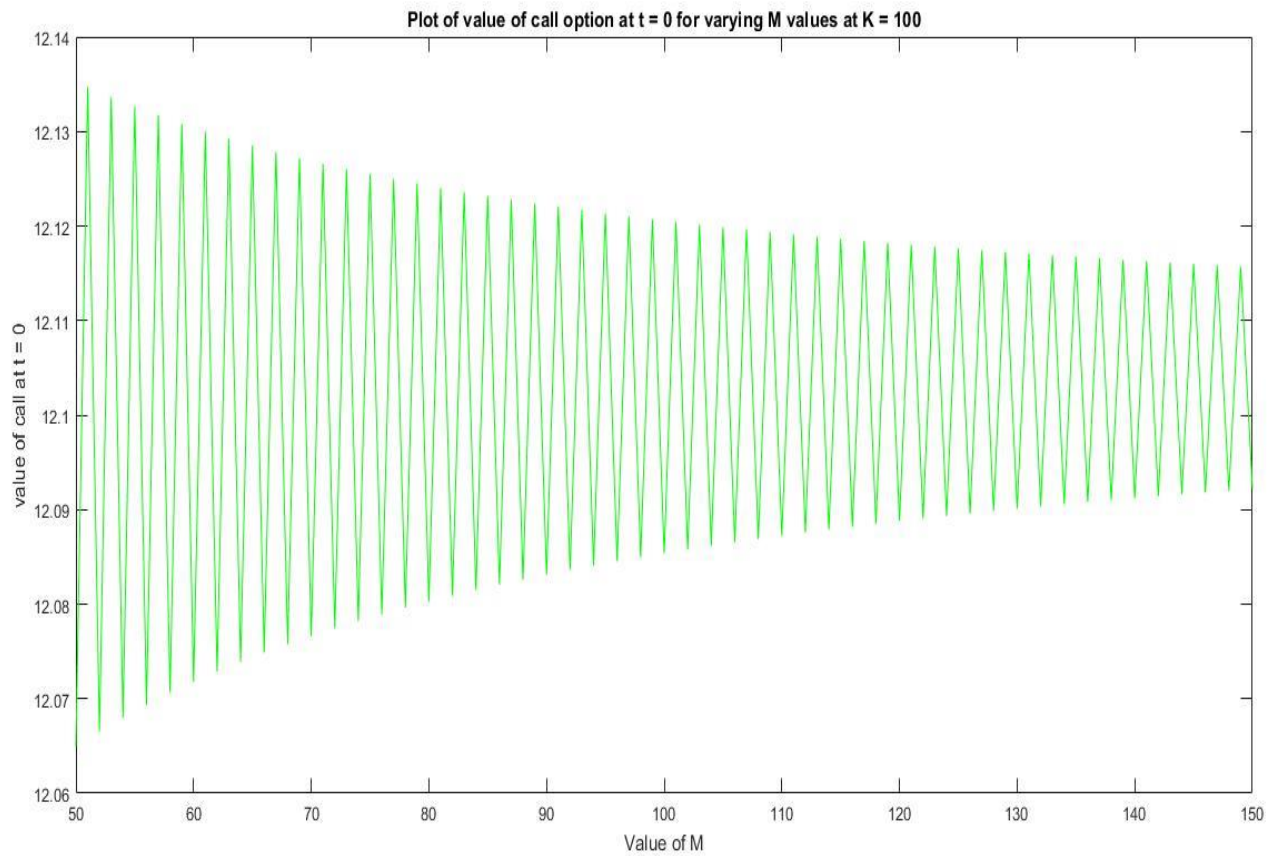
Plot of call option values at  $t = 0$  obtained by changing  $M$  from 50 – 150 for  $K = 95$  is



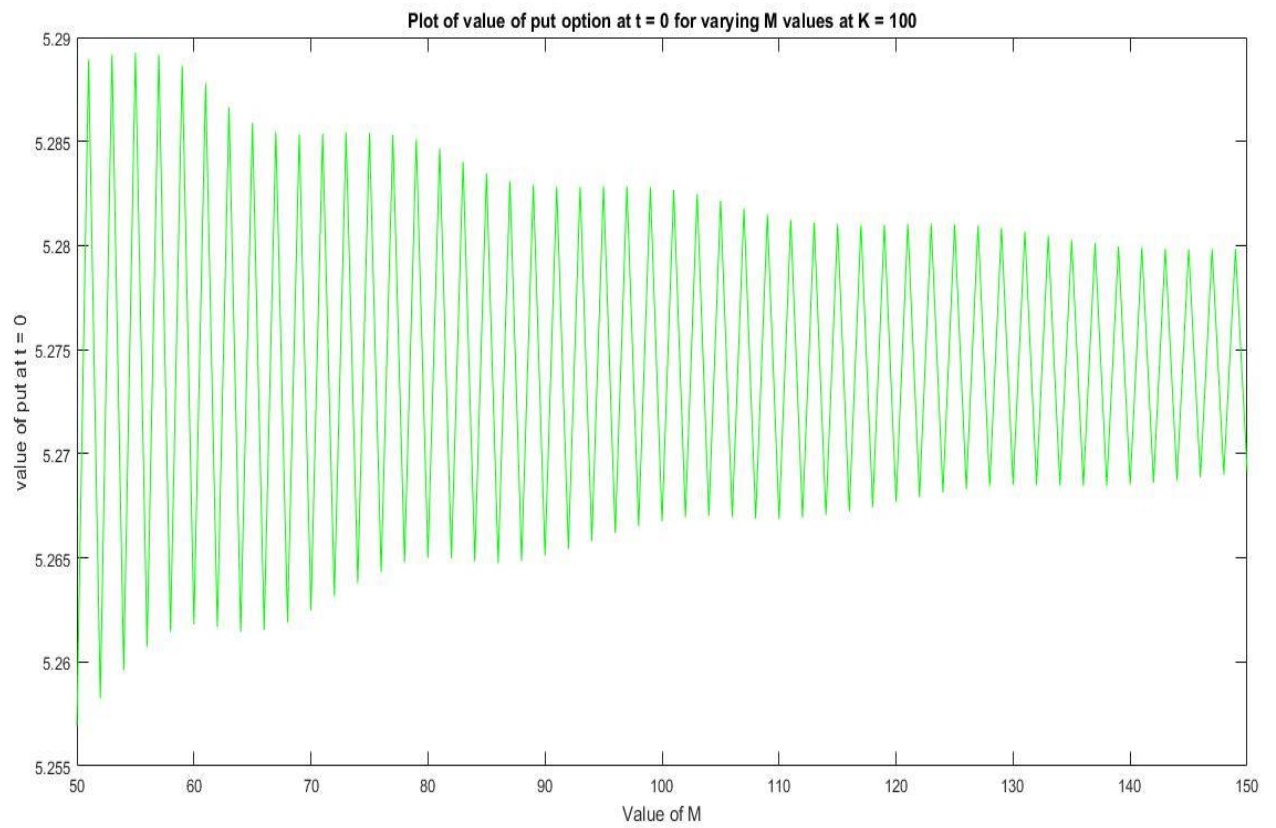
Plot of put option values at  $t = 0$  obtained by changing  $M$  from 50 – 150 for  $K = 95$  is



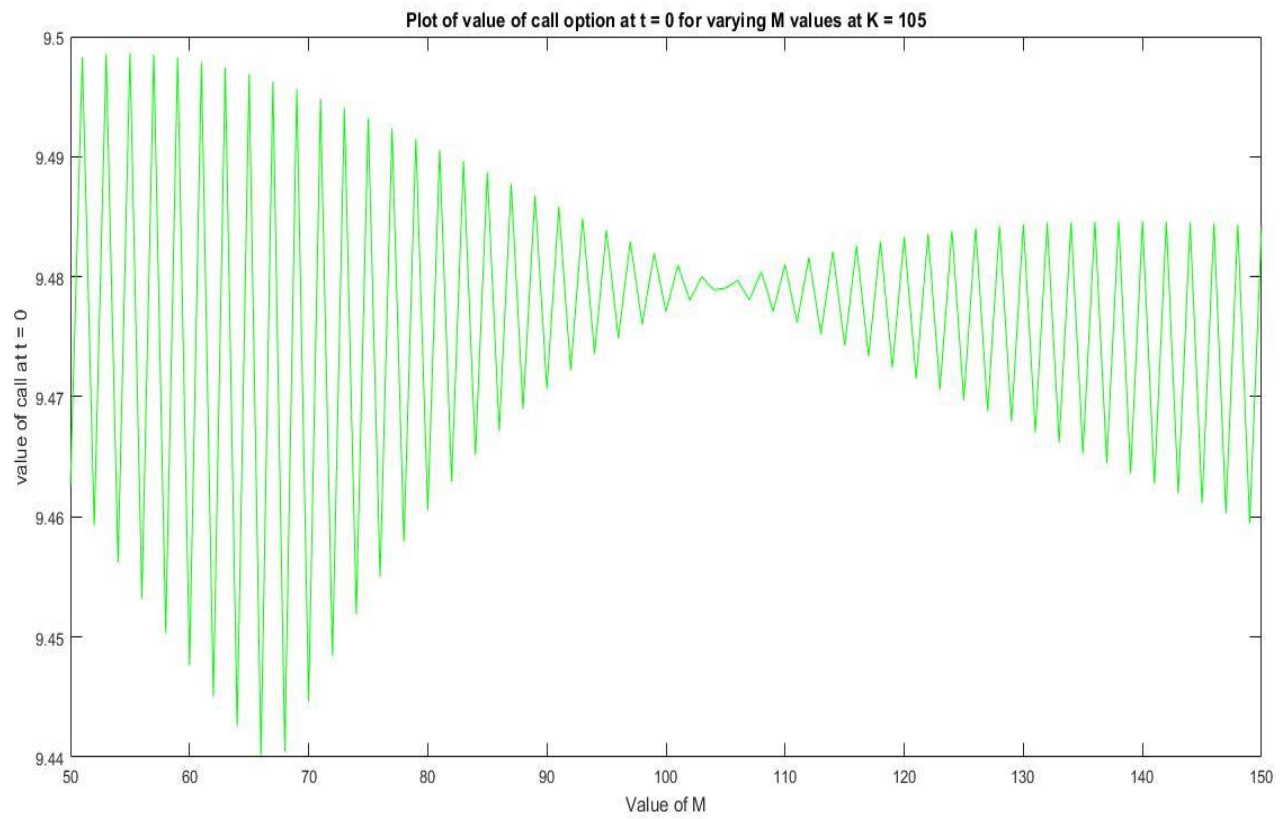
Plot of call option values at  $t = 0$  obtained by changing  $M$  from 50 – 150 for  $K = 100$  is



Plot of put option values at  $t = 0$  obtained by changing  $M$  from 50 – 150 for  $K = 100$  is



Plot of call option values at  $t = 0$  obtained by changing  $M$  from 50 – 150 for  $K = 105$  is



Plot of put option values at  $t = 0$  obtained by changing  $M$  from 50 – 150 for  $K = 105$  is

