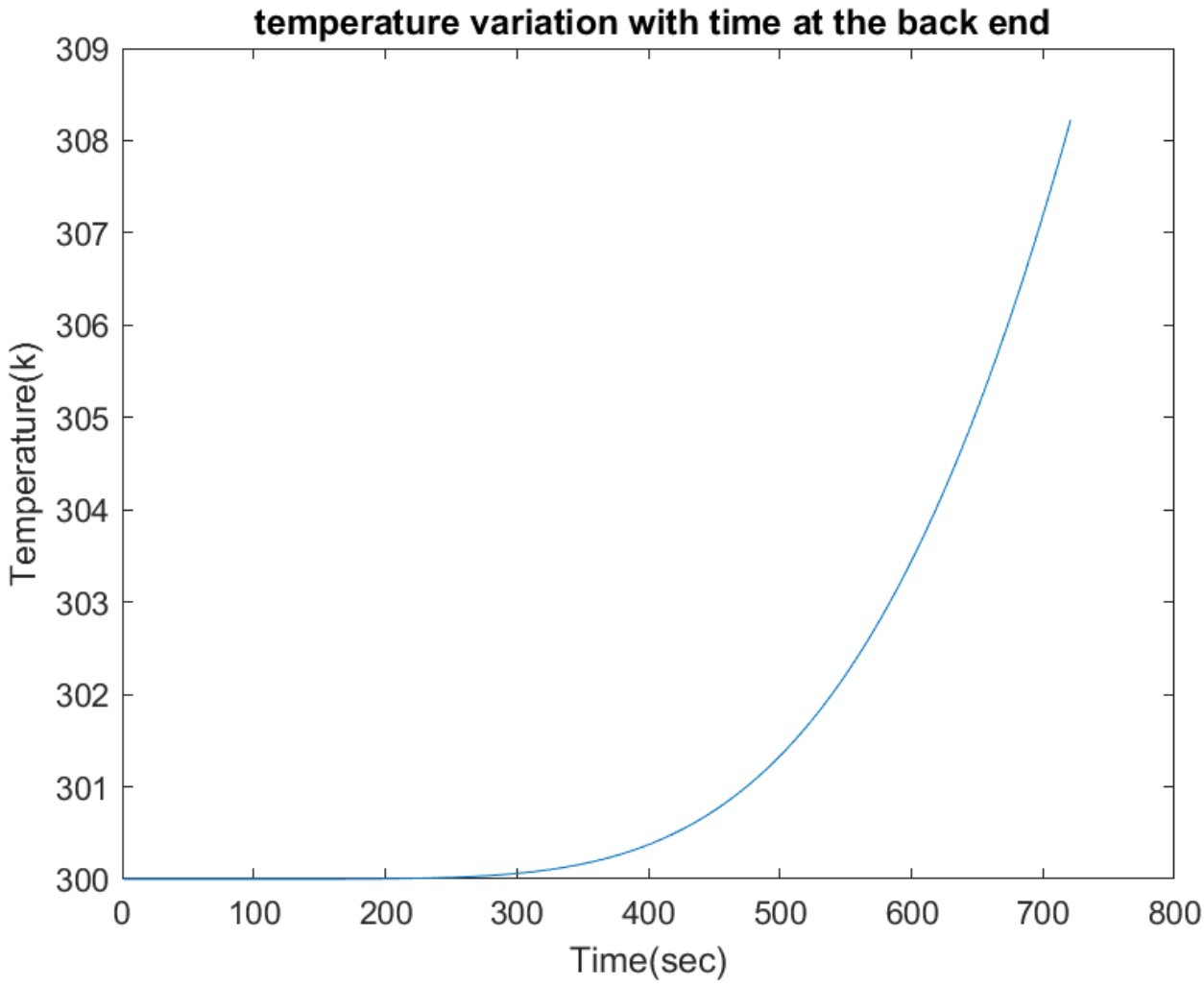
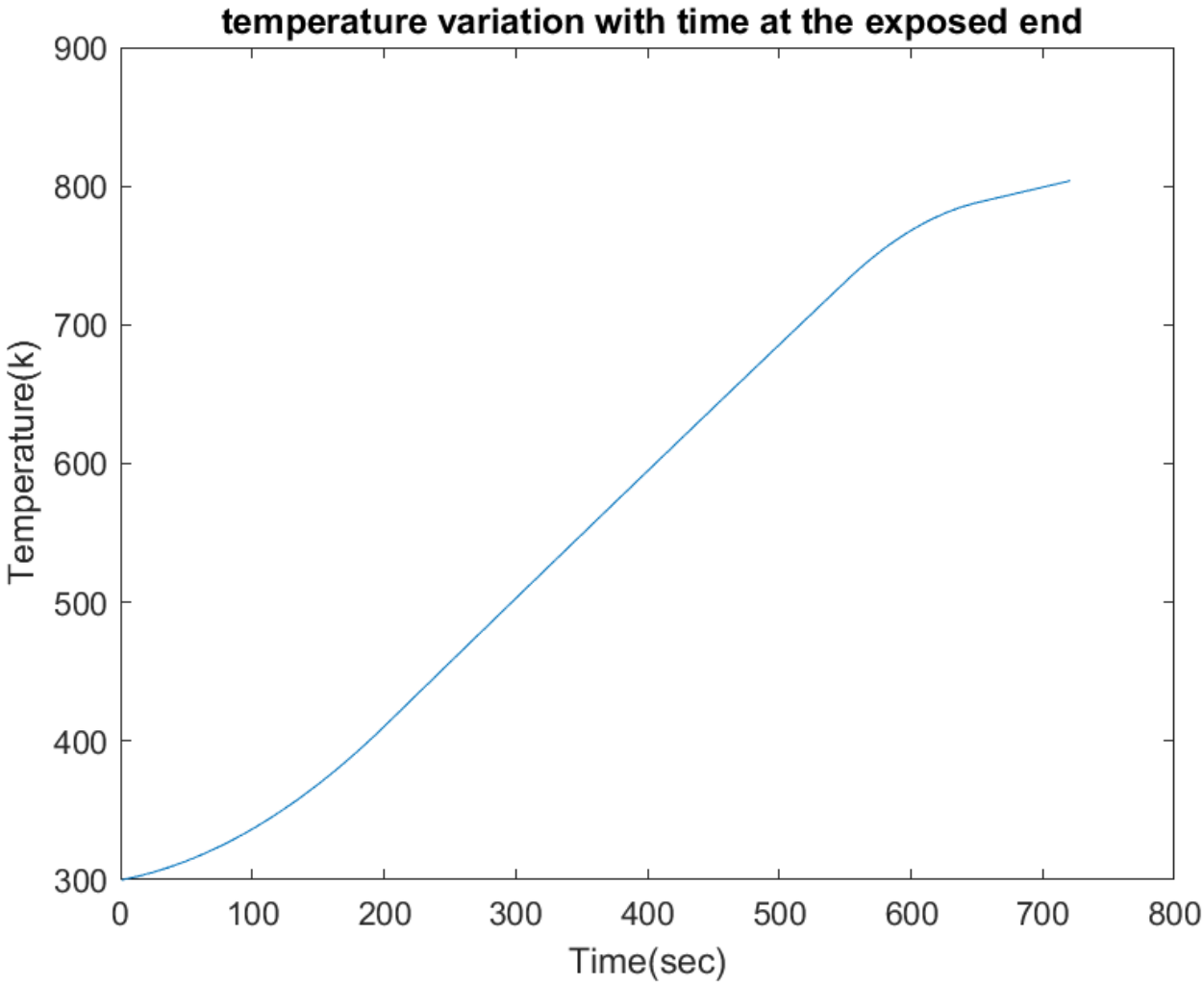
Name :Raghav Gupta
Roll No: 22101048

(A) Material which is selected for TPS is RCC Reinforced Carbo-Carbon.
Density = 1300 kg/m^3
Specific heat capacity = 820 J/kgK
Thermal Condutivity = 1.5 W/mk .
Thermal Diffusivity = 1.4* 10^(-6) m^2/sec
Melting Temperature = 3000 deg C
Maximum Temperature= 803.9173

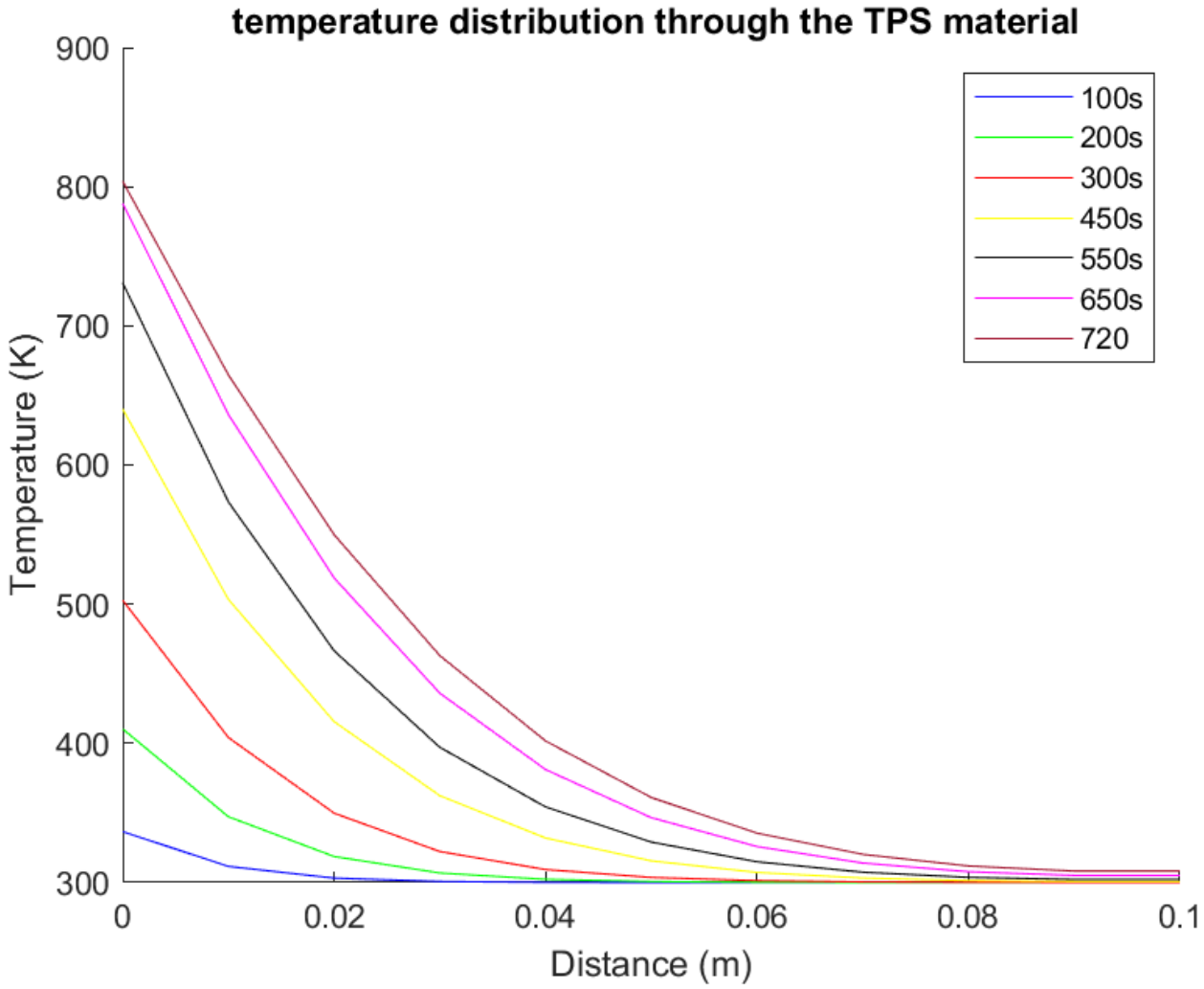
(B) Thickness of material = 0.1m=10cm
Weight/sq.meter = 130kg/sq.meter
Temperature at the end of thickness=308.238k

(d)



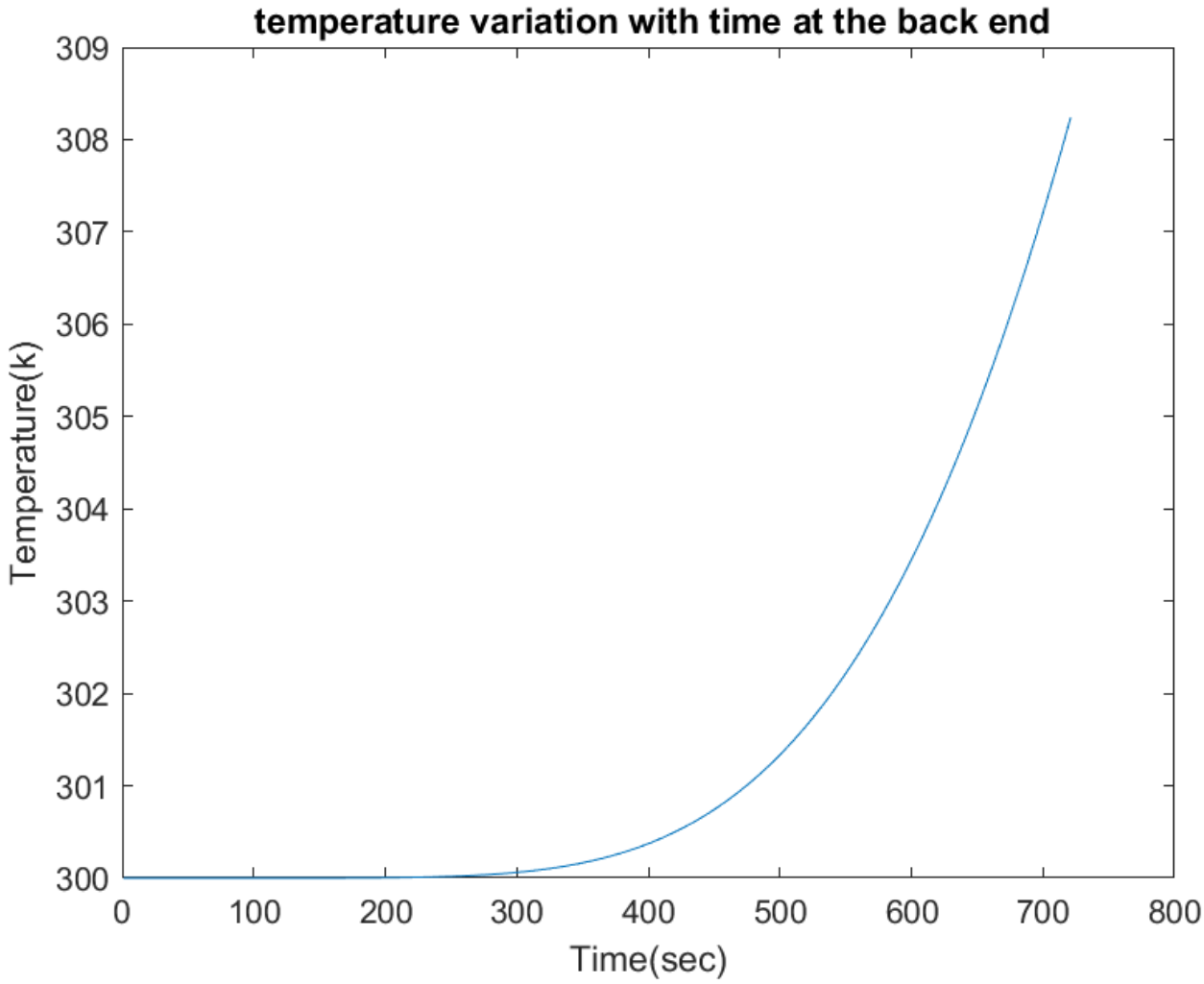

temperature variation with time at the exposed end
900
800
700
600
500
400
300
Temperature(k)
0
100
200
300
400
500
600
700
800
Time(sec)

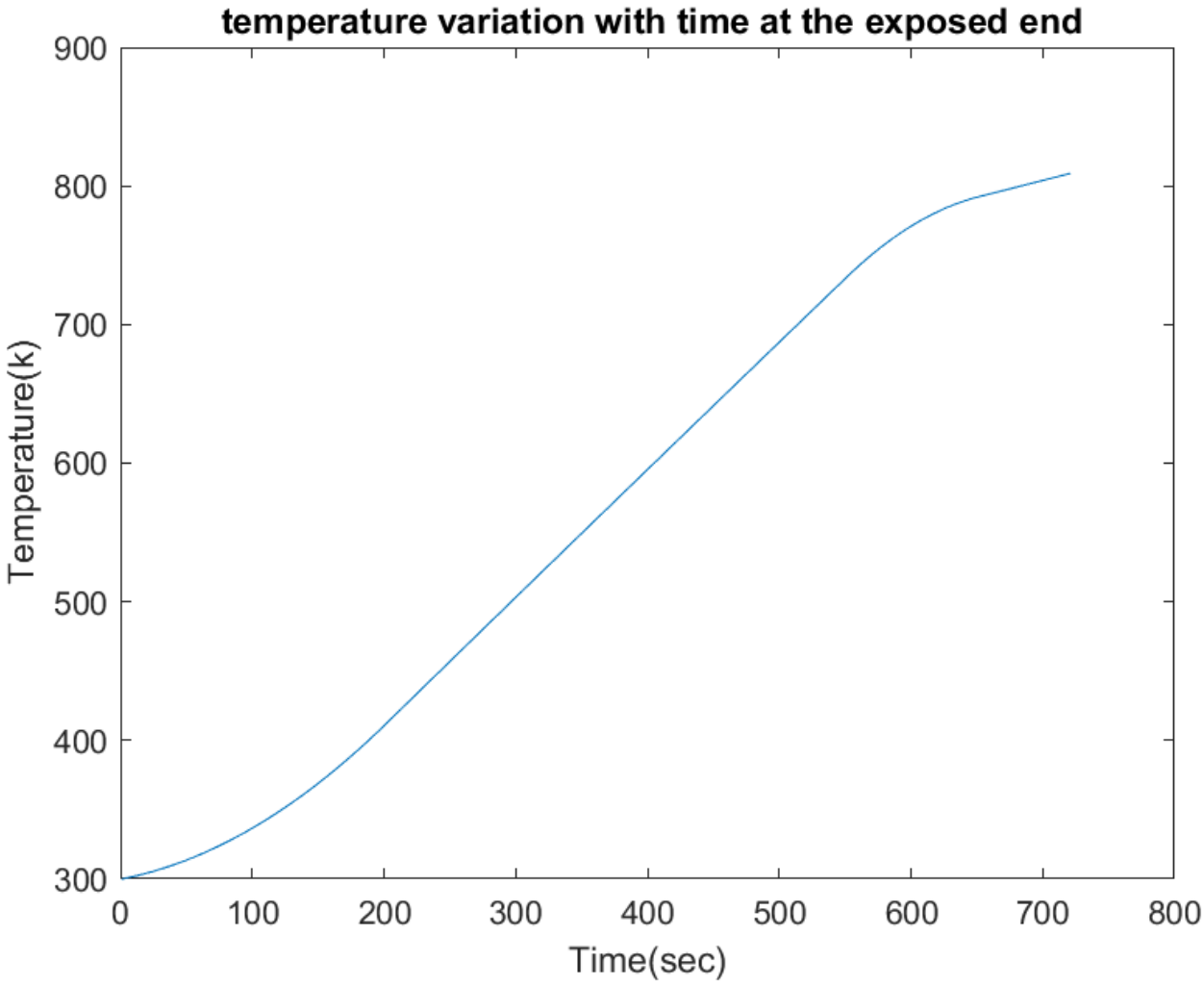
(e)

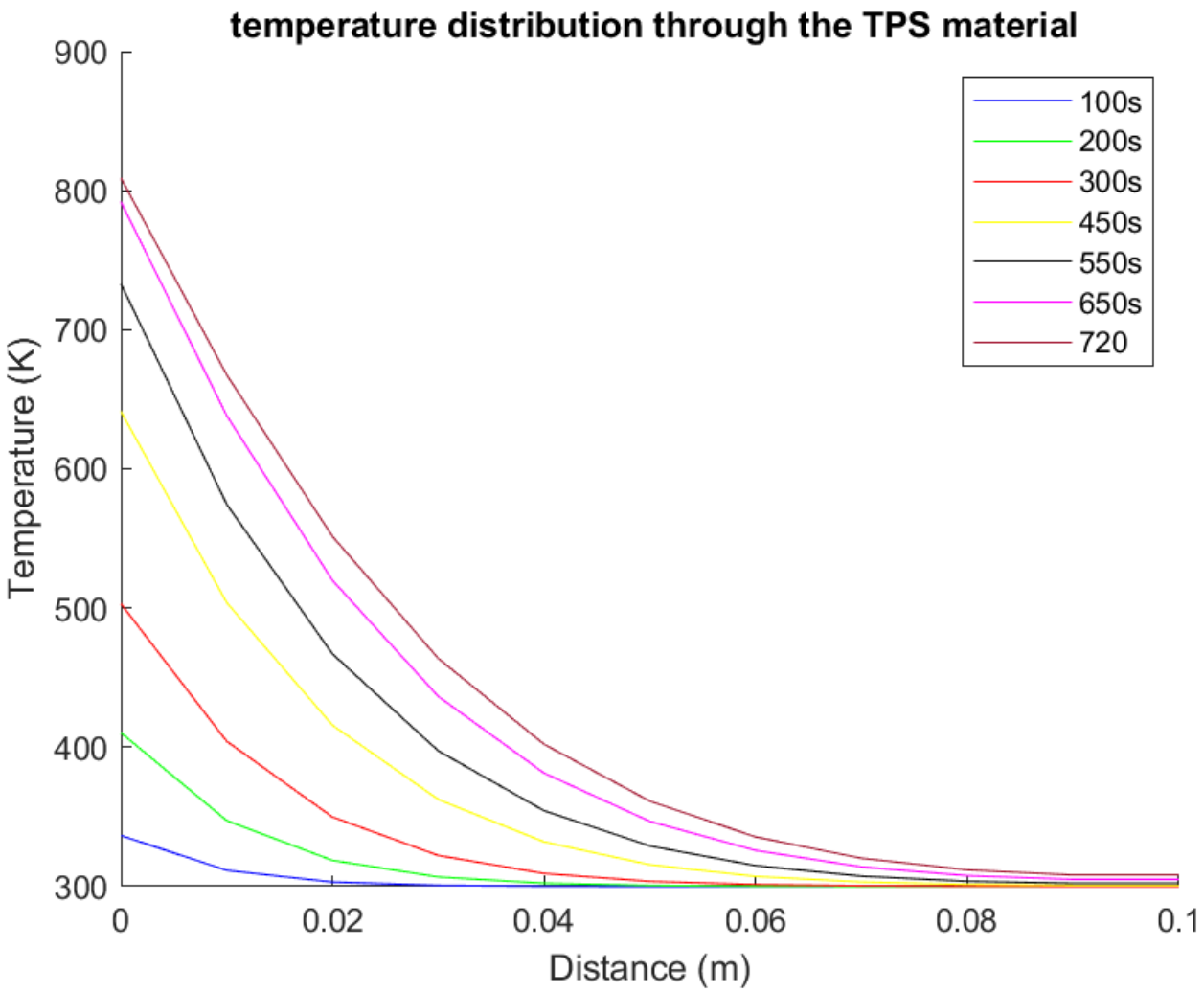


(f) the above results are plotted consider as constant Thermophysical properties.

(g) e=0


temperature variation with time at the back end
309
308
307
306
305
304
303
302
301
300
Temperature(k)
0
100
200
300
400
500
600
700
800
Time(sec)


temperature variation with time at the exposed end
900
800
700
600
500
400
300
Temperature(k)
0
100
200
300
400
500
600
700
800
Time(sec)


temperature distribution through the TPS material
900
800
700
600
500
400
300
Temperature (K)
0
0.02
0.04
0.06
0.08
0.1
Distance (m)
100s
200s
300s
450s
550s
650s
720