PART A:
I)
Vin=24V

Case 1: Ideal Case
parasitic resistance of inductor rl = 0

D	o/p voltage	voltage gain
0.1	26.71	1.11
0.2	30.02	1.25
0.3	34.00	1.43
0.4	40.22	1.67
0.5	47.56	1.98
0.6	60.04	2.50
0.7	80.89	3.37
0.8	118.41	4.93
0.9	243.50	10.15

Case 2:
parasitic resistance of inductor rl = 5% of RL

D	o/p voltage	voltage gain
0.1	25.14	1.05
0.2	27.88	1.16
0.3	31.21	1.31
0.4	35.16	1.46
0.5	39.6	1.65
0.6	45.62	1.91
0.7	51.54	2.15
0.8	52.51	2.19
0.9	39.33	1.64

II)
D=0.5;
RMS Capacitor Current: 4.34 amp

III)

D=0.5;
Inductance = 14.4 uF

V)

Load(PU)	Efficiency
0.2	0.850
0.3	0.870
0.4	0.880
0.5	0.887
0.6	0.887
0.7	0.895
0.8	0.907
0.9	0.920
1	0.930

PART B:

I)
Vin=57V

Case 1:
parasitic resistance of inductor rl = 0

D	Vout	|Vout/Vin|
0.1	-6.33	0.11
0.2	-14.25	0.25
0.3	-24.52	0.43
0.4	-38.00	0.66
0.5	-56.88	0.99
0.6	-85.44	1.50
0.7	-133.00	2.33
0.8	-228.15	4.01
0.9	-513.01	8.99

D=0.457 Fsw for which system in CCM and DCM
Fsw = 7.55 KHz

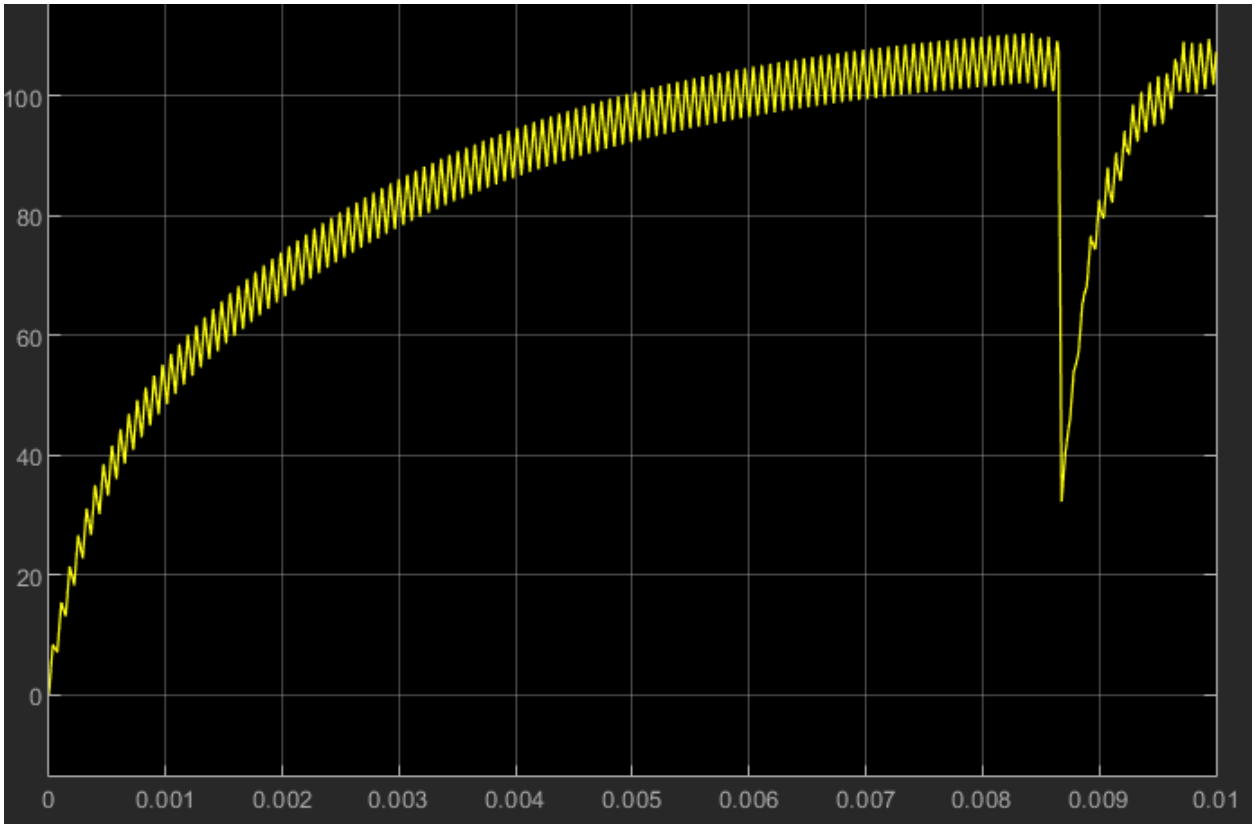
Case 2:
parasitic resistance of inductor rl = 5% of RL

D	Vout	|Vout/Vin|
0.1	-5.96	0.10
0.2	-13.20	0.23
0.3	-22.15	0.39
0.4	-33.39	0.59
0.5	-47.48	0.83
0.6	-65.11	1.14
0.7	-85.48	1.50
0.8	-101.32	1.78
0.9	-85.55	1.50

D=0.457 Fsw for which system in CCM and DCM
Fsw = 7.95 KHz

II)

calculation:
switching frequency = 13.8KHz is verge



At 13.8Khz graph

I_L at 7khz = 58.3 amps
I_L at 13.8 = 104.5 amps
I_L at 14khz = 68.86 amps

III)

D	i/p current	o/p current
0.1	0.15	-5.49
0.2	0.50	-1.24
0.3	0.91	-2.12
0.4	1.82	-3.30
0.5	2.48	-4.92
0.6	4.19	-7.36
0.7	8.57	-11.45
0.8	22.40	-19.62
0.9	107.78	-44.27