

ELG3336: Midterm 2

Name:

Number:

Question 1 (6 marks)

1. Draw a block diagram of an on demand heart pacemaker

2. How it operates: graph only.

3. Design a proper conditioning circuit for the pace maker.

4. Design a proper counter for the pace maker

5. Innovation: Propose an innovative solution for the pace maker (Bonus mark).

Question 2 (4 marks)

6. Draw a block diagram of series hybrid car

7. Design a suitable Buck converter for the processing system with an input voltage of 12 and output voltage of 5 V, switching frequency of 500 kHz, ripple current of 30%, and maximum power of 30 W.

8. Arrange the following as energy storage pack in the car: 4 Batteries each with 12 V and 16 supercapacitors each with 3 V.