1. Implement a counter that counts from 0 to 9 and then loops back to 0. (3 marks)

2. Create a group of 7 registers, namely a, b, c .. f, g to denote each of the 7 segments of a seven segment display, as shown in the figure below.

Extend your counter such that the appropriate segments of the display get turned on to indicate the value of the counter. (5 marks)

3. Write a testbench to your logic and verify the functionality. (2 marks)