
Name:

Entry No.:

Show all the steps in your solution clearly. Writing the final answer directly would not fetch any marks.

1. **[3 marks]** Draw a circuit that generates six repeated timing signals, T_0 to T_5 , using:
 - (a) flip-flops only.
 - (b) a counter and a decoder. (You may use a block diagrams for the counter as well as the decoder, but you must mention their specification.)

You must also mention the number and the kind of AND-gates needed in each design.

2. **[2 marks]** How many $128\text{ K} \times 8$ RAM chips are needed to provide a memory capacity of 2 M bytes? How many address lines must be used to access these 2 M bytes? Briefly justify your answer.