

Physics 316 – 2008 Assignment 6

Due: Friday, Nov. 7, 1:15 pm

Reading:

Unique source: read H&H 8.14 (stop before “Adders and other arithmetic chips”), 8.20,
skim 8.22,
read 8.29, 8.30, 8.33-8.35

(For the above material, there is only one good source.)

For the following, read either the primary source or the secondary source (or both):

Primary source: LM 342-349, 371-373
LM375-381 (stop before “1) Designing a J-K Flop”), 383

Secondary source: H&H 8.18, 8.19, 8.23, 8.24, 8.25, 11.12

Critical concepts: multiplexers and decoders, advantages of synchronously clocked circuits, multiple enable inputs, purpose of a one-shot, distinction between a latch and a register, what determines how fast you can clock circuits, what memory is & how to use it, types of memory, logic races & runt pulses

Assigned exercises (all group problems):

3.5 (p. 139)

3.21 (p. 167)

Bad Circuit D (p. 173)

Bad circuit O (p. 261; note that the op amp is meant to be powered from +/- 15 V).

For each bad circuit, explain what is wrong and provide a corrected version.