

Quiz#4

Thursday, Nov. 1st 2001

NAME: _____

SS#: _____

GENERAL RULES:

This is a CLOSED BOOK, CLOSED NOTES quiz.

Show ALL YOUR WORK on the test.

For PARTIAL CREDIT you must clearly show ALL INTERMEDIATE STEPS. PLAIN ANSWERS WILL GET NO CREDIT.

You MUST include UNITS with your answers for FULL credit.

TOTAL POINTS: 10

GOOD LUCK !!!!!

Question #1: (6 pts) What do we need for lasing action?

Mark the right answer(s):

- a) Captain Kirk
- ☒ b) stimulated emission
- ☒ c) inversion condition
- d) spontaneous emission
- e) short lived electronic states
- f) strong magnetic fields

Question #2: (4 pts) Why do we get discrete energy levels in atoms?

Mark the right answer(s):

- a) Because they are Fast and Furious and their Honda has a big exhaust pipe.
- b) Because electrons have a high thermal velocity.
- ☒ c) Because electrons are confined in the electric field of the nucleus.
- d) Because the nucleus vibrates.
- e) Because of the earth magnetic field.