

**EECS 120, Fall 1993**  
**Final**  
**Professor Fearing**

**Problem #1 (23 points)**

Classify the following systems. In each column, write "yes", "no", or "?" (use "?" if not decidable with given information). The input to the system is  $x(t)$  and the output is  $y(t)$ . (Note: do not fill in an answer in the blacked out space for letter (e)/BIBO stable.)

|   | Causal | Linear | Time-invariant | BIBO stable |
|---|--------|--------|----------------|-------------|
| a. $y(t) = 2x(t) + 1$                             |        |        |                |             |
| b. $y'(t) + y(t) = tx(t)$                         |        |        |                |             |
| c. $y(t) = x(t)\cos(\omega_c * t)$                |        |        |                |             |
| d. $Y(\omega) = X^2(\omega)$ , $x(t) = 0$ for $t$ |        |        |                |             |