

## CSIE 2344: Discussion (Unit 9)

### 1 Multiplexer

1. Show how two 4-to-1 and one 2-to-1 multiplexers could be connected to form an 8-to-1 MUX with three control inputs.
2. Show how four 2-to-1 and one 4-to-1 multiplexers could be connected to form an 8-to-1 MUX with three control inputs.
3. Show how two 2-to-1 multiplexers (with no added gates) could be connected to form a 3-to-1 MUX. Input selection should be as follows:
  - If  $AB = 00$ , select  $I_0$ .
  - If  $AB = 01$ , select  $I_1$ .
  - If  $AB = 1-$  ( $B$  is a don't-care), select  $I_2$ .

### 2 Encoder

Derive the logic equations for a 4-to-2 priority encoder.