

18) A) SUPPOSE THE  $i^{\text{TH}}$  ROW OF  $A$  CONSISTS ENTIRELY OF 0'S. CLAIM: THE  $i^{\text{TH}}$  ROW OF  $AB$  CONSISTS ENTIRELY OF ZEROS. VERIFICATION: CONSIDER ANY ELEMENT OF THE  $i^{\text{TH}}$  ROW OF  $AB$ , SAY THE  $ij$  ENTRY. IT IS CALCULATED BY MULTIPLYING THE ZEROS FROM THE  $i^{\text{TH}}$  ROW OF  $A$  WITH CORRESPONDING ENTRIES FROM THE  $j^{\text{TH}}$  COLUMN OF  $B$  AND ADDING THE RESULTS. CLEARLY THIS YIELDS AN ANSWER OF 0.

B) IF  $B$  HAS A COLUMN CONSISTING OF ALL ZEROS, THEN  $AB$  (IF DEFINED) WILL ALSO HAVE A COLUMN OF ZEROS.