1. Indicate whether the following statements are true or false.

(a) There is no polynomial-time algorithm for the knapsack problem with a worst-case bound of 1.09.
(b) There is no polynomial-time algorithm for the Triangle Traveling Salesman problem with a worst-case bound of 7/4.
(c) 2-Dimensional Matching and 2SAT are not NP-complete.
(d) A strongly NP-complete problem cannot have a pseudo-polynomial time algorithm.
(e) There is a polynomial-time algorithm for the bin packing problem with a worst-case ratio of 2.

2. Show that Vertex Cover is NP-complete. Is it strongly NP-complete?

3. Suppose we are given 2 identical machines and a set of \( n \) jobs \( \{J_1, J_2, ..., J_n\} \) with processing times \( \{p_1, p_2, ..., p_n\} \). Give a pseudo-polynomial time algorithm to find a schedule with the minimum makespan. What is the running time of your algorithm?

4. Prove or Disprove: There is a FPTAS for the multiprocessor scheduling problem. The multiprocessor scheduling problem is defined as follows: Given \( m \) identical machines and a set of \( n \) jobs \( \{J_1, J_2, ..., J_n\} \) with processing times \( \{p_1, p_2, ..., p_n\} \), find a schedule that minimizes the makespan.