Q6 a) Does there exist a simple graph G with 6 vertices, such that 5 of the degrees are: 5, 5, 3, 2, 1 ? Justify your answer. *(6 marks)*

ALTERNATE METHOD:

NO. In a 6-vertex (simple) graph G, if there are two vertices of degree 5, then all the other vertices must be adjacent to these two vertices. Hence, all vertices must have degree at least two. Thus, the graph G as given above cannot exist.