1 Artificial Intelligence I (SBH)

(a) Describe the basic algorithm for performing local search. Give an example of a search problem for which it is an appropriate solution, and an example of a search problem for which it is not. When would an algorithm such as A* search be preferred?

(b) Give two examples of a situation that might reduce the effectiveness of the basic local search algorithm. For each example you give, describe in detail a modification to the basic algorithm that might be used to overcome it.

(c) It is suggested to you that an application previously addressed as a constraint satisfaction problem might alternatively be solved using some variant of local search. Is this a reasonable suggestion? If it is, then outline a way in which it might be achieved. If not, then provide a reasoned discussion explaining why.