National University

of Computer & Emerging Sciences Peshawar Campus

Student Name: _____ Roll No: _____

Program: CS-18 A&B
Semester: SPRING – 2021
Time Allowed: 20:00 minutes
Course: Artificial Intelligence (CS 401 & 461)

Examination: MOCK
Total Marks: **60** Weightage: **30**
Date: 19/05/2021
Instructor: Dr. Hafeez ur Rehman

NOTE: Attempt all questions. Distribute your time according to question's overall weightage.

Time Allowed: 25 minutes

Submissions after 25 minutes will not be accepted.

Question # 02: [**Marks: 5 x 5**]

Give short answers (in no more than **two sentences**) of the following:

1. Given two *admissible* heuristics *h1* and *h2* with fluctuating cost estimates. How will you use them for your informed search algorithm and why?
2. What are the three reasons for Hill Climbing algorithm to be incomplete in a larger search space?
3. What will be the size of 7x7 (48-puzzle) puzzle's searchable state space?
4. Explain effective branching factor? Why we use it?
5. In simulated annealing, what will happen (explain using values of $p = e^{\Delta E/T}$) if we run the algorithm at a cold place say North Pole (where temperature is -50 C) and Sahara desert where temperature is +50 C?