**Assignment 1 – Question 9 (Written Problem)**

This non-programming problem is part of Assignment 1. Please add your answers to this document and submit your completed document along with your Pac-Man solutions.

Look at the following graph. Node A is the start node (indicated by the arrow with no tail node) and G is the goal (indicated by the double circle).

The table gives you the heuristic values *h*(*n*) for each node, however *h*(*C*) is unknown.

|  |  |  |
| --- | --- | --- |
| *n* | *h*(*n*) |  |
| A | 5 |
| B | 5 |
| C | ? |
| D | 3 |
| E | 3 |
| F | 1 |
| G | 0 |

1. Provide the range of values for *h*(*C*) for which *h* would be admissible.
2. Provide the range of values for *h*(*C*) for which *h* would be consistent.
3. If you were to follow the search strategies listed in the table, which of the listed paths are possible? Indicate valid paths by marking an X in the appropriate row(s). You may assume that *h* is admissible in each case. In some cases, more than one path may be a valid result, and you should mark all such paths.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Search algorithm | A – C – E – G | A – B – C – E – G | A – B – D – G | A – B – D – F – G |
| Depth first |  |  |  |  |
| Breadth first |  |  |  |  |
| *A\** with heuristic *h* |  |  |  |  |