Assignment AI. 1

Missionaries and canibals problems
3 3

- State space representation –

<R, M, C>

River side 1, 2

start end

- successer function –

<1, 3, 3> <2, 0, 0> [initial state]

<1, 3, 1> <2, 0, 2> →

<1, 3, 2> <2, 0, 1> ←

<1, 3, 0> <2 0, 3> →

<1, 3, 1> <2, 0, 2> ← → intermediat state

<1, 1, 1> <2, 2, 2> →

<1, 2, 2> <2, 1, 1> ←

<1, 0, 2> <2, 3, 1> →

<1, 0, 3> <2, 3, 0> ←

<1, 0, 1> <2, 3, 2> →

<1, 0, 2> <2, 3, 1> ←

<1, 0, 0> <2, 3, 3> - final

Arc cost = 10

Path cost = 11

<1,3,3>	<2,0,0>	⇒ Initial state.
<1,3,1>	<2,0,2>	⟶
<1,3,2>	<2,0,1>	⟵
<1,3,0>	<2,0,3>	⟶
<1,3,1>	<2,0,2>	⟵
<1,1,1>	<2,2,2>	⟶
<1,2,2>	<2,1,1>	⟵
<1,0,2>	<2,3,1>	⟶
<1,0,3>	<2,3,0>	⟵
<1,0,1>	<2,3,2>	⟶
<1,0,2>	<2,3,1>	⟵
<1,0,0>	<2,3,3>	⟶ final

- Goal Test :- check if all the missionaries and Canibals are at the right ~~side~~ bank of the river.

- Arc Cost = 11
- Goal state = <2,3,3>

AND.

2nd question.

State space : Given map and 4 different colours.

Initial state : map with uncoloured region.

Successor function : It will colour the uncoloured region

Goal test : check, if all region coloured with no adjacent region coloured with same colour.