You will need to use the next three laboratory exercises to complete the following two problems as well as all the Prolog programs in the previous laboratory exercises.

Q1. Take a copy of the Prolog solution to the farmer, wolf, goat and cabbage problem from the unit web site.
   - Load the program, trace its execution, to ensure that you understand how it works.
   - Change the order of the rules to verify that the solution will be different for different rule orderings.
   - Examine the path predicate to ensure that you understand how Prolog is searching the state space.
   - Ensure you understand the use of the list that maintains the current solution path (especially when the program backtracks).

Q2. Use the techniques from Q1 to solve the following problem in Prolog:

   3 missionaries and 3 cannibals come to the bank of a river they wish to cross. There is a boat that will hold only 2, and any of the group is able to row it. If there are ever more missionaries than cannibals on any side of the river the cannibals will be converted. Devise a series of moves to get all the people across the river with no conversions.

You are required to demonstrate the Prolog program in Q2 to your tutor. The demonstration assessment will be carried out in week 13 of the teaching week. This part of the assessment will contribute 5% of your total practical assessment (15%).

Submit the following question at the end of the semester

(Please note that tutor will not give you the answers for this question)

1. What is a production system?