Problem 1

Consider the scheduling a project consisting of 3 sequences as follows:

- Each sequence \( i \) \((i = 1, 2, 3)\) has four activities \( A_i, B_i, C_i, D_i, E_i \), excepting for sequence 2 that does not include the activity \( B \).

- In each sequence, activities \( B \) and \( C \) cannot start till activity \( A \) is completed, and activity \( D \) cannot start till activities \( B \) and \( C \) are completed. Activity \( E \) cannot start till activity \( D \) is completed.

- Each of the activities \( A_i, B_i, C_i, D_i \) and \( E_i \) share a critical resource.

- All relationships are considered Finish-to-Start with 0 required lag.

Develop the network diagram for the above project clearly showing all resource and technical constraints separately. The activity durations are as follows:

- \( A_1 = 3, A_2 = 2, A_3 = 3 \).
- \( B_1 = 1, B_3 = 1 \).
- \( C_1 = 4, C_2 = 3, C_3 = 4 \).
- \( D_1 = 2, D_2 = 5, D_3 = 2 \).
- \( E_1 = 1, E_2 = 1, E_3 = 1 \).

Please clearly show the critical path in the network.

Problem 2

Develop a network diagram and schedule it for the AISC case study (durations available online).