Before starting this homework assignment, please review the AIB simulation in this week’s lesson. This simulation will provide you with an understanding of how to create a network diagram, and how to do a forward and backward pass to determine the ES, LS, EF, LF, and slack (float). You will also learn how to determine the duration of the project, and the critical path.

In this homework assignment, you will be working through four Activity In Box (AIB) problems. Using the activity, duration, and predecessor information given in this document, you should first construct a network for each project. [Each problem will have its own network.]   
  
Once you have constructed the network, please answer the corresponding questions. Once you answer the questions, please submit your responses. You do not have to submit your network diagrams, the answers to the questions are sufficient.

Good Luck!

**Problem 1**

The following data were obtained from a project to create a new portable electronic.

**Activity Duration Predecessors**

A 5 Days ---

B 6 Days ---

C 8 Days ---

D 4 Days A, B

E 3 Days C

F 5 Days D

G 5 Days E, F

H 9 Days D

I 12 Days G

Step 1: Construct a network diagram for the project.

Step 2: Answer the following questions. (14 points total)

1. What is the scheduled completion of the project? (5 points)
2. What is the critical path of the project? (4 points)
3. What is the ES for activity D? (1 points)
4. What is the LS for activity G? (1 points)
5. What is the EF for activity B? (1 points)
6. What is the LF for activity H? (1 points)
7. What is the float for activity I? (1 points)

**Problem 2**

The following data were obtained from a project to build a pressure vessel.

**Activity Duration Predecessors**

A 6 weeks ---

B 6 weeks ---

C 5 weeks B

D 4 weeks A, C

E 5 weeks B

F 7 weeks D, E, G

G 4 weeks B

H 8 weeks F

I 5 weeks G

J 3 week I

Step 1: Construct a network diagram for the project.

Step 2: Answer the following questions. (12 points total)

1. Calculate the scheduled completion time. (5 points)
2. Identify the critical path. (3 points)
3. What is the slack time (float) for activity A? (1 points)
4. What is the slack time (float) for activity D? (1 points)

e) What is the slack time (float) for activity E? (1 points)

f) What is the slack time (float) for activity G? (1 points)

**Problem 3**

The following data were obtained from a project to design a new software package.

**Activity Duration Predecessors**

A 5 Days ---

B 8 Days ---

C 6 Days A

D 4 Days C, B

E 5 Days A

F 4 Days D, E, G

G 4 Days B, C

H 3 Day G

Step 1: Construct a network diagram for the project.

Step 2: Answer the following questions. (12 points total)

1. Calculate the scheduled completion time. (5 points)
2. Identify the critical path(s). (3 points)
3. What is the slack time (float) for activity B? (1 points)
4. What is the slack time (float) for activity D? (1 points)

e) What is the slack time (float) for activity E? (1 points)

f) What is the slack time (float) for activity G? (1 points)

**Problem 4**

The following data were obtained from an in-house MIS project.

**Activity Duration Predecessors**

A 5 Days ---

B 8 Days ---

C 5 Days A

D 4 Days B

E 5 Days B

F 3 Day C, D

G 7 Days C, D

H 6 Days E, F, G

I 9 Days E, F

Step 1: Construct a network diagram for the project.

Step 2: Answer the following questions. (12 points total)

1. Calculate the scheduled completion time. (5 points)
2. Identify the critical path. (3 points)
3. What is the slack time (float) for activity A? (1 points)
4. What is the slack time (float) for activity D? (1 points)
5. What is the slack time (float) for activity E? (1 points)
6. What is the slack time (float) for activity F? (1 points)