Problem 1

(a) Look at Excel sheet.

(b) Referring to the excel sheet, the year with the minimum EAC is year 7.

(c) We can see from the excel sheet and the prior questions that if we use the machine for 7 years, we will be operating at the minimum EAC for the first 10 years. Thus, we should use it 7 years and then sell it.

Problem 2

Bicycle Tire Repair Guide

1. Preparation 1.1. Gather all necessary tools and parts. 1.2. Find a clean and well-lit workspace. 1.3. Place the bicycle upside down or secure it in a stand to keep it stable.

2. Remove the Wheel 2.1. Shift the bike to the lowest gear to ease wheel removal. 2.2. Release the brakes to allow free movement of the wheel. 2.3. Use a wrench or quick-release lever to detach the wheel from the bicycle frame.

3. Remove the Tire and Tube 3.1. Use tire levers to pry one side of the tire away from the rim. 3.2. Carefully pull the inner tube out from the tire, avoiding any damage. 3.3. Inspect the inside of the tire for any sharp objects or debris that could have caused the puncture.

4. Locate the Puncture 4.1. Slightly inflate the tube to help locate the puncture. 4.2. Submerge the tube in water or listen/feel for escaping air to pinpoint the puncture location.

5. Patch the Tube 5.1. Mark the puncture location clearly with a marker or chalk. 5.2. Use sandpaper to roughen the area around the puncture for better adhesion. 5.3. Apply a thin, even layer of rubber cement to the roughed-up area. 5.4. Allow the rubber cement to dry until it feels tacky to the touch. 5.5. Firmly apply the rubber patch over the puncture, pressing it down evenly.

6. Reassemble the Tire 6.1. Allow the patch to set for a few minutes to ensure it adheres properly. 6.2. Carefully insert the tube back into the tire, ensuring it is not twisted. 6.3. Use tire levers to fit the tire back onto the rim, taking care not to pinch the tube. 6.4. Inflate the tire to the recommended pressure indicated on the tire sidewall.

7. Reattach the Wheel 7.1. Position the wheel back onto the bicycle frame, aligning it correctly. 7.2. Secure the wheel using a wrench or quick-release lever, making sure it is tight. 7.3. Reconnect the brakes and ensure they are properly adjusted.

8. Final Checks 8.1. Ensure the tire is properly inflated to the recommended pressure. 8.2. Spin the wheel to check for proper alignment and ensure it spins freely. 8.3. Test the brakes to confirm they are functioning correctly and safely.

Parallel Activities

1. **Removing the Wheel**: One person can release the brakes and shift the gears while the other uses the wrench/quick-release lever to remove the wheel.
2. **Removing the Tire and Tube**: One person can use tire levers while the other starts inspecting the tire for debris.
3. **Locate the Puncture**: One person inflates the tube while the other inspects for the puncture using water or listening/feeling for air.
4. **Patch the Tube**: One person can roughen the area and apply rubber cement while the other prepares the rubber patch.
5. **Reassemble the Tire**: One person can insert the tube while the other ensures the tire is seated properly on the rim.
6. **Reattach the Wheel**: One person can place the wheel back onto the frame while the other secures it and reconnects the brakes.

Tools and Parts Required

Tools:

- Tire levers
- Wrench (wheel removal)
- Bicycle pump
- Sandpaper
- Container of water (for puncture detection)

Parts:

- Rubber cement
- Rubber patch
- Rag or cloth (for cleaning)

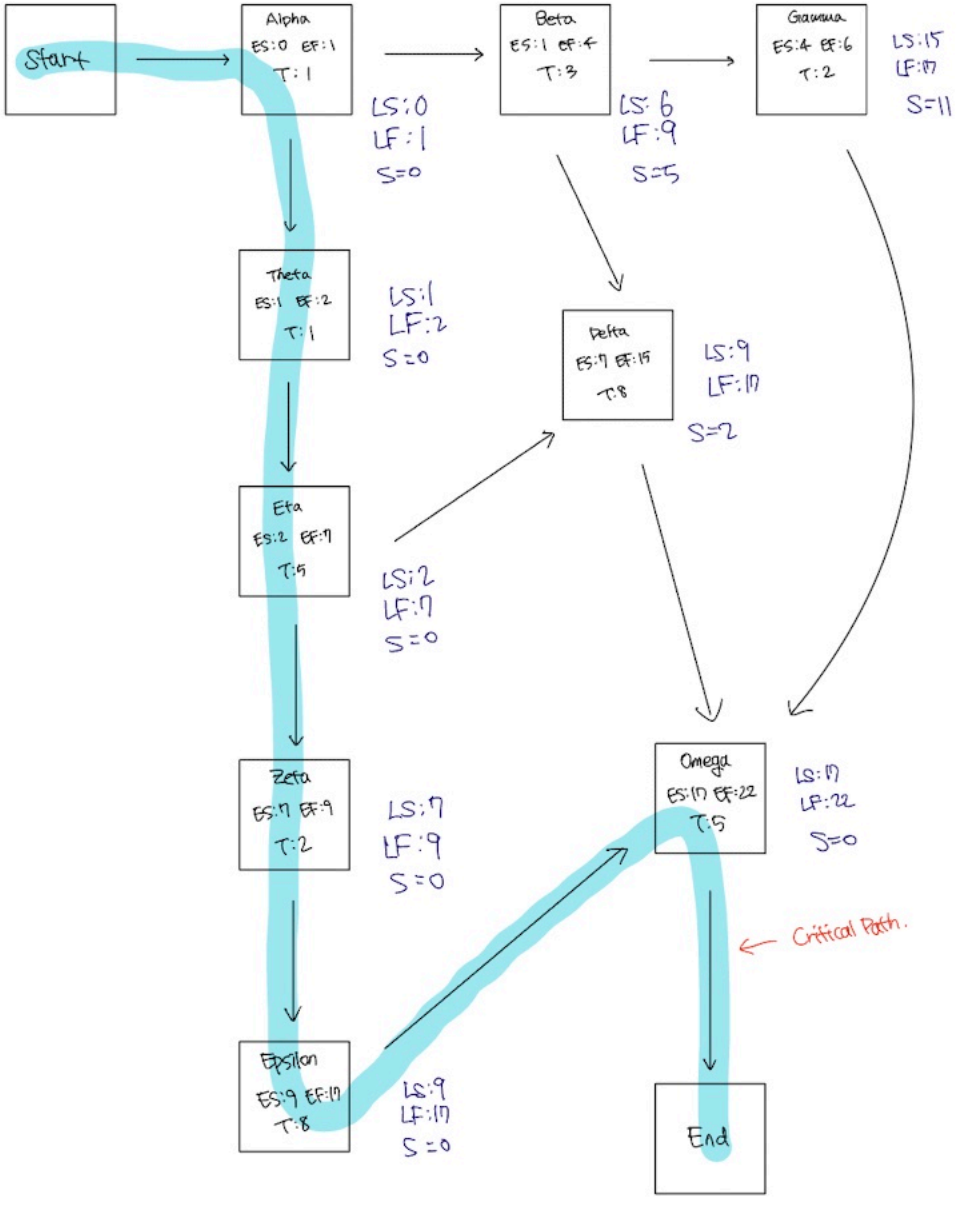
Problem 3

See Excel file.

Problem 4

Attached on to the pdf (Next Page).

The activity with the greatest slack is **Gamma**.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Beta
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LF:2
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Delta
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S=0
Omega
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T:5
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LF:22
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Critical Path.
Epsilon
ES:9 EF:17
T:8
LS:9
LF:17
S=0
End