Assignment 6: Layout Efficiency

**Problem 1**

Question 1:

1. Unbalanced Load Balance Diagram

Chart

Description automatically generated

TC = (24hrs \* 60min)/180 requests = 8 min

1. Minimum number of workstations required

(5+5+4+1+1+1+2+1+1) / 8 = 2.625 or about 3 workstations

Question 2:

Balanced Load Balance Diagram

Chart, bar chart

Description automatically generated

1. idle time before and after layout improvements

ITB = (9 \* 8) - 21 = 51 min

ITA = (4 \* 8) - 21= 11 min

1. efficiency before and after layout improvements

EB = (51 / (9 \* 8) ) \* 100 = 78.8%

EA = (11 / (4 \* 8) ) \* 100 = 34.37%

Question 3:

Sketch of the balanced U-shaped cell layout indicating what tasks will be carried out by each station.

Chart, waterfall chart

Description automatically generated

**Problem 2**

Question 1:

1. Unbalanced Load Balance Diagram

Chart

Description automatically generated

TC = (8 \* 3600) / 480 = 60 sec

1. Minimum number of workstations required

(16+18+13+14+10+12+7+11+14+17+11+20) / 60 = 2.7 or about 3 workstations

Question 2:

Balanced Load Balance Diagram

Chart, bar chart

Description automatically generated

1. idle time before and after layout improvements

ITB = (12 \* 60) - 163 = 557 seconds

ITA = (4 \* 60) - 163 = 77 seconds

1. efficiency before and after layout improvements

EB = (557 / (12 \* 60) ) \* 100 = 77.4%

EA = (77 / (4 \* 60) ) \* 100 = 32.1%

Question 3:

Sketch of the balanced U-shaped cell layout indicating what tasks will be carried out by each station.

A picture containing chart

Description automatically generated