Supply Chain

Q2)

**Conclusion**

Here is what we have deduced from the given Supply Chain Model. There are 8 different combinations possible. We have calculated the value and time taken for the merchandise to succeed in the USA market, for each of these of combinations. We have calculated the weighted activity time for all the 8 combinations and from all those, we have selected a value of 1555 which is the smallest amount for any combination of the model i.e. (Disk from Malaysia, Motherboard from China, PC box up Taiwan, and therefore the Market in USA).

**Step by Step Demonstration**

**Configuration-1**

Disk-Malaysia; Motherboard-Mexico; PC Box-Canada

**(i) Calculation of total cost** (Select the minimum cost)

VA (DK) + TCST(DK-PC) + VA(MB) + TCST (MB-PC) + VA(PC) + TCST(PC-USA)

=50+7+150+5+50+8 = 270

**(ii) Calculation of cycle time** (take the longest path)

Max{[PLT(DK) + TLT (DK-PC)], [PLT(MB) + TLT (MB-PC)]} + PLT(PC) + TLT (PC-USA)

Max [(3+2),(3+1)] + 2 +1 = 8 weeks

**(iii) Calculation of weighted activity time** (select the minimum time)

(sum of the processing/transporting times for each individual segment of the network multiplied by the number of units processed by the node or shipped through the link. This includes all the paths not just the longest path in network)

VA (DK)\*PLT(DK) + [VA(DK) + TCST (DK-PC)]\*TRLT (DK-PC)

+ VA (MB)\*PLT(MB) + [(VA(MB) + TCST (MB-PB)]\*TRLT (**MB-PB)**

+ [VA (DK) + TCST (DK-PB) + VA (MB) + TCST (MB-PB) + VA (PB)]\*PLT (PB)

+ [VA (DK) + TCST (DK-PB) + VA (MB) + TCST (MB-PB) + VA (PB) + TCST (PB-USA)]\***TRLT (PB-USA)**

=50\*3 + (50+7)\*2 + 150\*3 + (150+5)\*1 + (50+7+150+5+50)\*2 + (50+7+150+5+50+8)\*1

=1663

**Configuration-4**

Disk-Malaysia; Motherboard-China; PC Box-Taiwan

**(i) Calculation of total cost** (Select the minimum cost)

VA (DK) + TCST(DK-PC) + VA(MB) + TCST (MB-PC) + VA(PC) + TCST(PC-USA)

=50+4+130+5+35+20 =244

**(ii) Calculation of cycle time** (take the longest path)

Max{[PLT(DK) + TLT (DK-PC)], [PLT(MB) + TLT (MB-PC)]} + PLT(PC) + TLT (PC-USA)

Max [(3+1),(2+1)] + 1 +3 =8 weeks

**(iii) Calculation of weighted activity time** (select the minimum time)

(sum of the processing/transporting times for each individual segment of the network multiplied by the number of units processed by the node or shipped through the link. This includes all the paths not just the longest path in network)

VA (DK)\*PLT(DK) + [VA(DK) + TCST (DK-PC)]\*TRLT (DK-PC)

+ VA (MB)\*PLT(MB) + [(VA(MB) + TCST (MB-PB)]\*TRLT (**MB-PB)**

+ [VA (DK) + TCST (DK-PB) + VA (MB) + TCST (MB-PB) + VA (PB)]\*PLT (PB)

+ [VA (DK) + TCST (DK-PB) + VA (MB) + TCST (MB-PB) + VA (PB) + TCST (PB-USA)]\***TRLT (PB-USA)**

=50\*3 + (50+4)\*1 + 130\*2 + (130+5)\*1 + (50+4+130+5+35)\*1 + (50+4+130+5+35+20)\*3

=1555