

THE HONG KONG POLYTECHNIC UNIVERSITY  
HONG KONG COMMUNITY COLLEGE

**Subject Title** : Logistics and Stores Management      **Subject Code** : CCN2300

**Session** : Semester One, 2017/18

**Numerical Answers**

**Question B1**

- (b)(i) Total capacity =  $(4)(2)(60)(20) = 9,600$  unit loads  
 (b)(ii) Width =  $3(1 + 0.15) = 3.45\text{m/aisle}$   
 Length =  $L = 60(1 + 0.20) = 72\text{m}$   
 Height =  $H = 25\text{m}(1\%)$
- (b)(iii) Single command cycle time =  $T_{cs} = \text{Max}\{72/60, 25/30\} + 2(30/60) = 2.2$  min/cycle  
 Dual command cycle time =  $T_{cd} = \text{Max}\{(1.5)(72/60), (1.5)(25/30)\} + 4(30/60)$   
 = 3.8 min/cycle
- (b)(iv) Utilization = 0.95,  $\rightarrow 60U = R_{cs}T_{cs} + R_{cd}T_{cd}$ ,  
 $\rightarrow 2.2R_{cs} + 3.8R_{cd} = 57$  min ,  
 Since  $R_{cs} = R_{cd}$ ,  $R_{cs} = R_{cd} = 9.5$  command cycles/hr  
 Throughput =  $4(R_{cs} + 2R_{cd}) = 4(3 \times 9.5)$   
 = 114 transactions/hr

**Question B2**

(b)

Product ID	Unit Cost	Monthly Demand	TOTAL	% OF TOTAL VALUE	% OF TOTAL QTY	
13	HK\$15,999	40	HK\$639,960	33.2%	2.9%	2.9%
7	HK\$14,000	45	HK\$630,000	32.7%	3.3%	6.2%
6	HK\$5,099	45	HK\$229,455	11.9%	3.3%	9.5% <b>A (2%)</b>
5	HK\$1,200	75	HK\$90,000	4.7%	5.5%	14.9%
1	HK\$1,099	55	HK\$60,445	3.1%	4.0%	18.9%
10	HK\$700	70	HK\$49,000	2.5%	5.1%	24.0%
3	HK\$700	65	HK\$45,500	2.4%	4.7%	28.7%
9	HK\$500	80	HK\$40,000	2.1%	5.8%	34.5% <b>B (2%)</b>
11	HK\$200	160	HK\$32,000	1.7%	11.6%	46.2%
14	HK\$199	140	HK\$27,860	1.4%	10.2%	56.4%
4	HK\$150	150	HK\$22,500	1.2%	10.9%	67.3%
8	HK\$120	180	HK\$21,600	1.1%	13.1%	80.4%
12	HK\$160	130	HK\$20,800	1.1%	9.5%	89.8%
2	HK\$130	140	HK\$18,200	0.9%	10.2%	100.0% <b>C</b>
<u>(Sort by Total Value 4%)</u>						

**Question B3**

(c)

<b>6</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	
X1	X3	X1	X3	X1	X3	X1	X3	X1	X3	X1	X3	
6	+6	+9	+3	+0	+12	+1	+15	+0	+0	+2	+3	= 57
											60-	
											57	<u><u>3</u></u>