

Question 1

	P ₁	P ₂	P ₃	P ₄	P ₅	P ₆
P ₁	0	0.2357	0.2218	0.3688	0.3421	0.2347
P ₂	0.2357	0	0.1483	0.2042	0.1388	0.2540
P ₃	0.2218	0.1413	0	0.1513	0.2843	0.1100
P ₄	0.3688	0.2042	0.1513	0	0.2932	0.2216
P ₅	0.3421	0.1388	0.2843	0.2932	0	0.3921
P ₆	0.2347	0.2540	0.1100	0.2216	0.3921	0

In single linkage the distance between two clusters is the minimum distance between the members of two clusters. So, here P₃ & P₆ forms the first cluster.

	P ₁	P ₂	P ₃ , P ₆	P ₄	P ₅
P ₁	0	0.2357	0.2218	0.3688	0.3421
P ₂	0.2357	0	0.1483	0.2042	0.1388
P ₃ , P ₆	0.2218	0.1483	0	0.1513	0.2843
P ₄	0.3688	0.2042	0.1513	0	0.2932
P ₅	0.3421	0.1388	0.2843	0.2932	0

So, here P₂ and P₅ forms the second cluster

	P_1	$P_2 \& P_5$	$P_3 P_6$	P_4
P_1	0	0.2357	0.2218	0.3688
$P_2 P_5$	0.2357	0	0.1413	0.2042
$P_3 P_6$	0.2218	0.1483	0	0.1513
P_4	0.3688	0.2042	0.1513	0

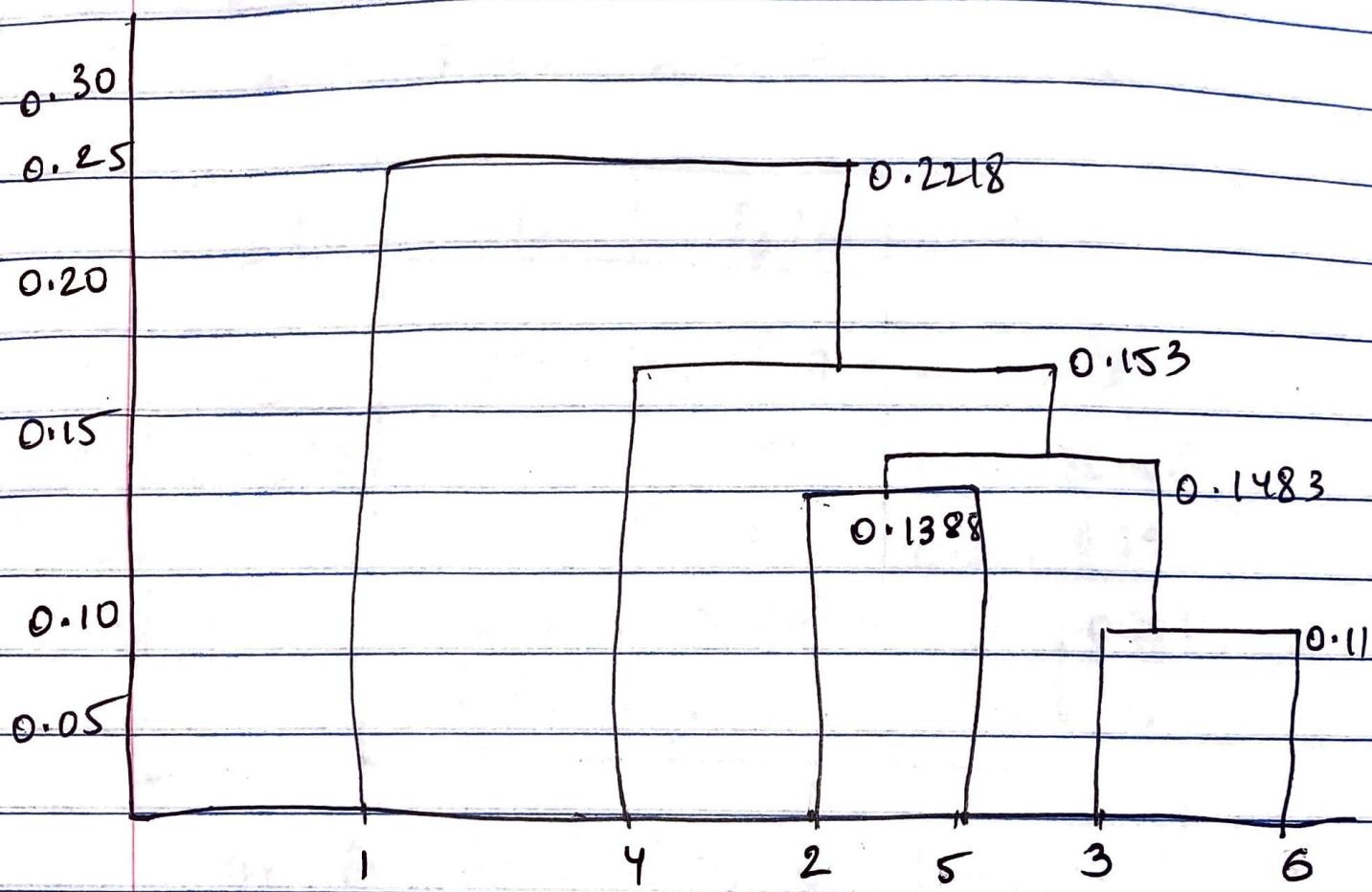
so, here $P_2 P_5$ & $P_3 P_6$ forms the third cluster.

	P_1	$P_2 P_5 P_3 P_6$	P_4
P_1	0	0.2218	0.3688
$P_2 P_5 P_3 P_6$	0.2218	0	0.1513
P_4	0.3688	0.1513	0

here, $P_2 P_5 P_3 P_6$ & P_4 forms fourth cluster.

	P_1	$P_2 P_5 P_3 P_6 P_4$
P_1	0	0.2218
$P_2 P_5 P_3 P_6 P_4$	0.2218	0

Single link Proximity:



	P ₁	P ₂	P ₃	P ₄	P ₅	P ₆
P ₁	0	0.2357	0.2218	0.3688	0.3421	0.2347
P ₂	0.2357	0	0.1483	0.2042	0.1388	0.254
P ₃	0.2218	0.1483	0	0.1513	0.2843	0.11
P ₄	0.3688	0.2042	0.1513	0	0.2932	0.2216
P ₅	0.3421	0.1388	0.2843	0.2932	0	0.3921
P ₆	0.2347	0.254	0.11	0.2216	0.3921	0

complete linkage is the maximum distance b/w the members of two clusters.

Here $P_3 \& P_6$ forms the first cluster.

	P_1	P_2	$P_3 P_6$	P_4	P_5
P_1	0	0.2357	0.2347	0.3688	0.3421
P_2	0.2357	0	0.254	0.2042	0.1388
P_3	0.2347	0.254	0	0.2216	0.3921
P_4	0.3688	0.2042	0.2216	0	0.2932
P_5	0.3421	0.1388	0.3921	0.2932	0

Here P_2, P_5 form the second cluster

	P_1	$P_2 P_5$	$P_3 P_6$	P_4
P_1	0		0.3921	
$P_2 P_5$	0.3421	0		0.2932
$P_3 P_6$	0.2347	0.3921	0	0.2216
P_4	0.3688	0.2932	0.2216	0

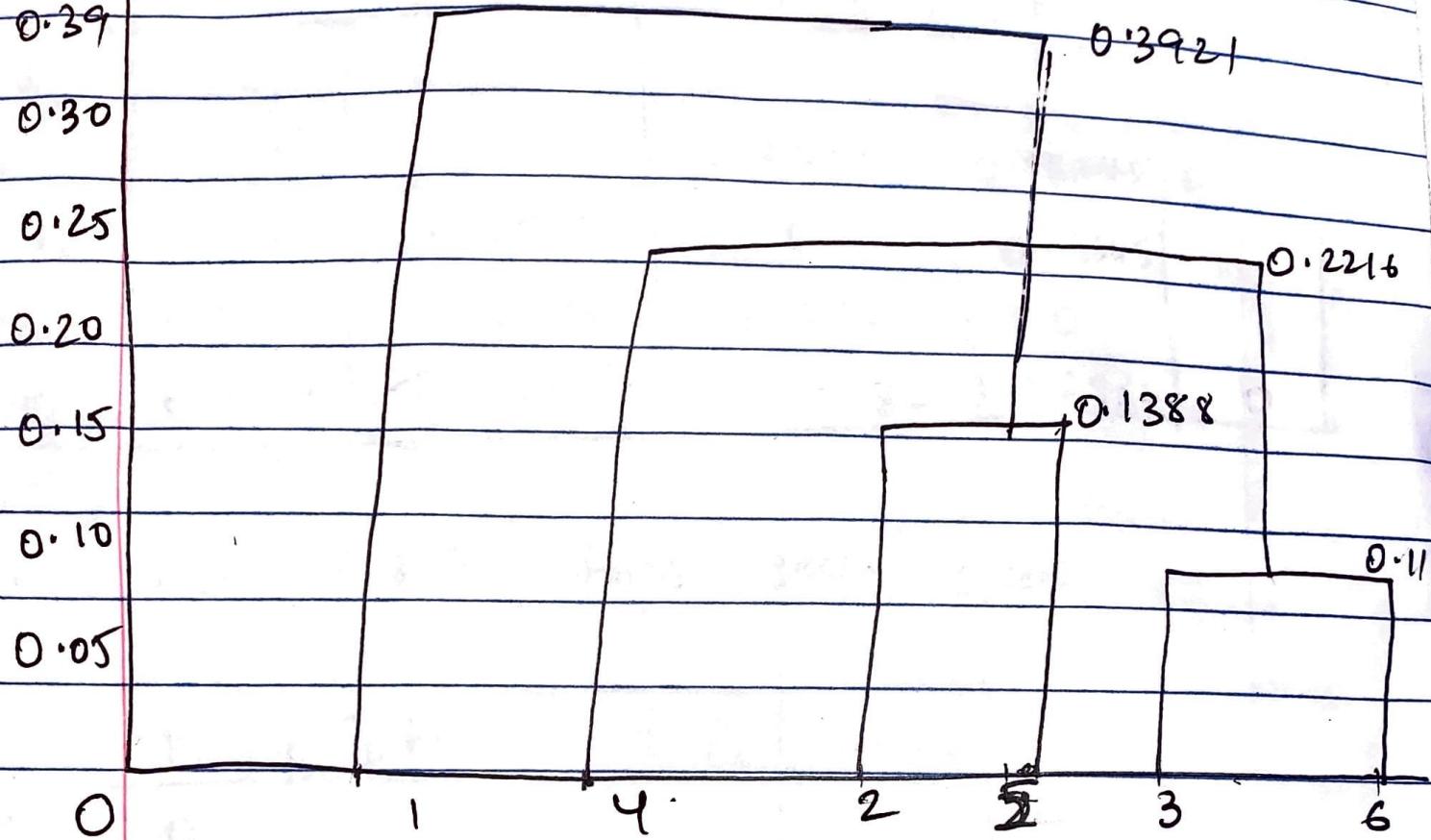
Here $P_3 P_6$ & P_4 form third cluster

	P_1	$P_2 P_5$	$P_3 P_6 P_4$
P_1	0	0.3421	0.3688
$P_2 P_5$	0.3421	0	0.3921
$P_3 P_6 P_4$	0.3688	0.3921	0

Here P_1 & $P_2 P_3$ form fourth cluster

	$P_1 P_2 P_5$	$P_3 P_6 P_4$
$P_1 P_2 P_5$	0	0.3928
$P_3 P_6 P_4$	0.3928	0

Complex Link Proximity



In average link proximity, we use avg of distance b/w members of two clusters.

	P ₁	P ₂	P ₃	P ₄	P ₅	P ₆
P ₁	0	0.2357	0.2218	0.3688	0.3421	0.2347
P ₂	0.2357	0	0.1483	0.2042	0.1388	0.254
P ₃	0.2218	0.1483	0	0.1513	0.2843	0.11
P ₄	0.3688	0.2042	0.1513	0	0.2932	0.2216
P ₅	0.3421	0.1388	0.2843	0.2932	0	0.3921
P ₆	0.2347	0.234	0.11	0.2216	0.3921	0

Here P_3 & P_6 forms first cluster.

	P_1	P_2	$P_3 P_6$	P_4	P_5
P_1	0				
P_2	0.2357	0	0.20115	0.18645	0.3382
$P_3 P_6$	0.22825	0.20115	0	0.18645	
P_4	0.3688	0.2042	0.18645	0	
P_5	0.3421	0.1388	0.3382	0.2932	0

Here P_2 & P_5 forms second cluster

	P_1	$P_2 P_5$	$P_3 P_6$	P_4
P_1	0			
$P_2 P_5$	0.2889	0	0.269675	0.2487
$P_3 P_6$	0.2282	0.269675	0	0.18645
P_4	0.3421	0.2487	0.18645	0

Here $P_3 P_6$ & P_4 forms a cluster

	P_1	$P_2 P_5$	$P_3 P_6 P_4$
P_1	0		0.2815
$P_2 P_5$	0.2889	0	0.2591875
$P_3 P_6 P_4$	0.2815	0.2591875	0

Here $P_2 P_5$ & $P_3 P_6 P_4$ forms a cluster.

	P_1	$P_2 P_5 P_3 P_6 P_4$
P_1	0	0.285
$P_2 P_5 P_3 P_6 P_4$	0.285	0

complete linkage

