1.

(a).

TID.	Items
1	ACDE
2	CDE
3	AC
4	BE
5	ABDE
6	ABCDE

C_1:

$\rightarrow$

A	4
B	3
C	4
D	4
E	5

$\downarrow$

L_1:

A	4
B	3
C	4
D	4
E	5

C_2

$\rightarrow$

AB	2 (x)
AC	3
AD	3
AE	3
BC	1 (x)
BD	2 (x)
BE	3
CD	3
CE	3
DE	4

$\downarrow$

L_2:

AC	3
AD	3
AE	3
BE	3
CD	3
CE	3
DE	4

C_3

$\rightarrow$

ACD	2 (x)
ACE	2 (x)
ADE	3
CDE	3

$\downarrow$

L_3

ADE	3
CDE	3

(b).

L_1:

A	4
B	3
C	4
D	4
E	5

L_2:

AC	3
AD	3
AE	3
BE	3
CD	3
CE	3
DE	4

L_3:

ADE	3
CDE	3

#

(C).

NULL

1356 A   456 B   1236 C   1256 D   12456 E

56 AB   136 AC   156 AD   156 AE   6 BC   56 BD   456 BE   126 CD   126 CE   1256 DE

6 ABC   56 ABD   56 ABE   16 ACD   16 ACE   156 ADE   6 BCD   6 BCE   56 BDE   126 CDE
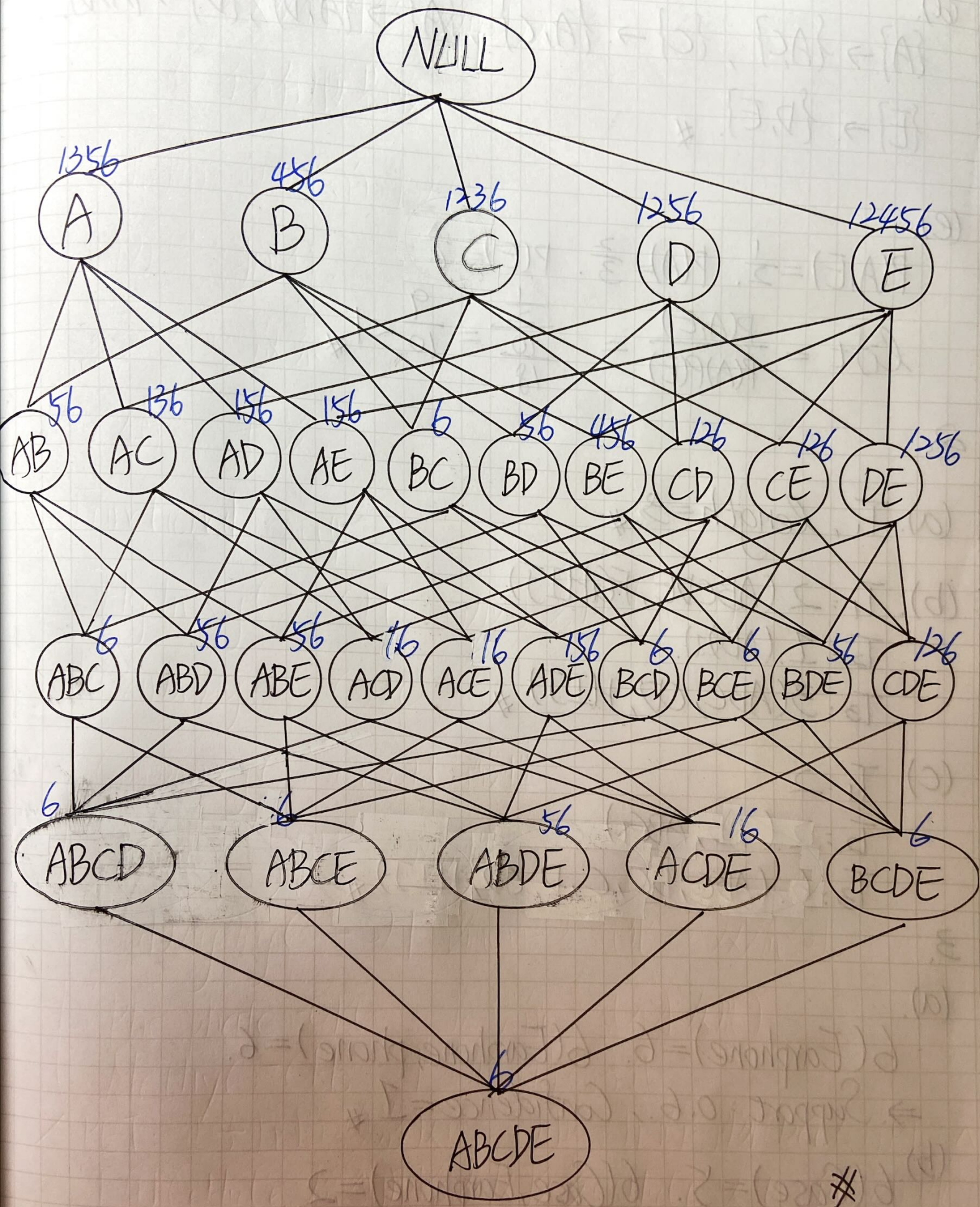
6 ABCD   6 ABCE   56 ABDE   16 ACDE   6 BCDE

6 ABCDE

(d).

$\{A\} \rightarrow \{A,C\}$, $\{C\} \rightarrow \{A,C\}$, $\{A\} \rightarrow \{A,D\}$, $\{D\} \rightarrow \{A,D\}$.

$\{E\} \rightarrow \{D,E\}$. #

(e).

$P(A,E) = \frac{1}{2}$. $P(A) = \frac{2}{3}$. $P(E) = \frac{5}{6}$.

$lift = \frac{P(A,E)}{P(A)P(E)} = \frac{\frac{1}{2}}{\frac{10}{18}} = \frac{9}{10} < 1$ #

2.

(a). T_1, $length = 5$ #

(b). $T_1 : 2$ (ABCDE, FGHIJ).

$T_2 : 1$ (ABG).

$T_3 : 3$ (ABC, CD, HIJ) #

(c). $T_1 : 2$

$T_2 : 2$ (AB, ABG)

$T_3 : 6$ (ABC, BC, C, D, CD, HIJ). #

3.

(a).

$6(Earphone) = 6$. $6(Earphone, phone) = 6$.

$\Rightarrow$ Support : 0.6., Confidence = 1 #

(b). $6(Case) = 5$. $6(Case, Earphone) = 2$.

$\Rightarrow$ Support = 0.2, Confidence = 0.4 #