

①

id	A1	A2	A3	target
1	4	1	3	-
2	1	1	1	-
3	3	1	1	-
4	2	1	3	+
5	1	1	3	-
6	3	4	1	+
7	4	1	3	-
8	2	3	1	-
9	1	2	2	+
10	1	2	3	+
11	1	3	1	+
12	3	2	3	+

Node1

$E(s) = -\frac{6}{12} \log(\frac{6}{12}) - \frac{6}{12} \log(\frac{6}{12})$
 $= 1$

Node11

Node12

Node13

Node14

$E = \frac{2}{8} \log(\frac{2}{8}) - \frac{6}{8} \log(\frac{6}{8})$
 $= 0.99$

$E = 1$

$E = \frac{1}{5} \log(\frac{1}{5}) - \frac{4}{5} \log(\frac{4}{5})$
 $= 0.92$

$E = 0$

Gain(s, A1) = $1 - \frac{5}{12}(0.99) - \frac{2}{12}(1) - \frac{3}{12}(0.92)$
 $= 0.2$

Node15

Node16

Node17

Node18

$E = 0$

$E = \frac{1}{4} \log(\frac{1}{4}) - \frac{3}{4} \log(\frac{3}{4})$
 $= 0.81$

$E = 1$

$E = 0$

Gain(s, A2) = $1 - \frac{4}{12}(0.81) - \frac{2}{12}(1)$
 $= 0.56$

Node19

Node20

Node21

Node22

$E = \frac{2}{5} \log(\frac{2}{5}) - \frac{3}{5} \log(\frac{3}{5})$
 $= 0.97$

$E = 0$

$E = 1$

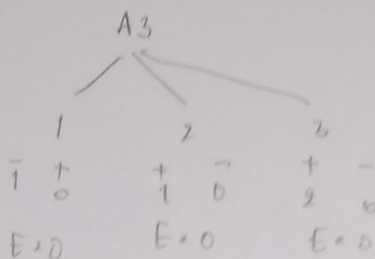
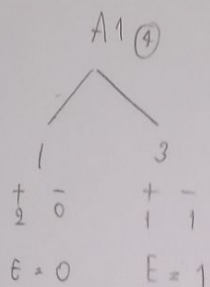
Gain(s, A3) = $1 - \frac{5}{12}(0.97) - \frac{6}{12}(1)$
 $= 0.095$

Node1 don A2

Node Deep 1 (2)

id	A1	A2	A3	T
3	3	2	1	-
9	1	2	2	+
10	1	2	3	+
12	3	2	3	+

$$E(S) = -\frac{1}{4} \log\left(\frac{1}{4}\right) - \frac{3}{4} \log\left(\frac{3}{4}\right) = 0.81$$



$$\text{Gain}(S, A1) = 0.81 - \frac{2}{4} = 0.31$$

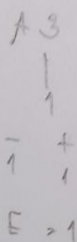
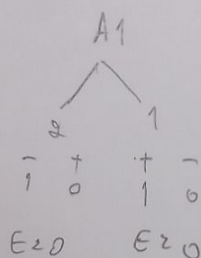
$$\text{Gain}(S, A3) = 0.81$$

Node Deep 1 (2)

เลือก A3

Node Deep 1 (3)

id	A1	A2	A3	T
3	2	3	1	-
11	1	3	1	+

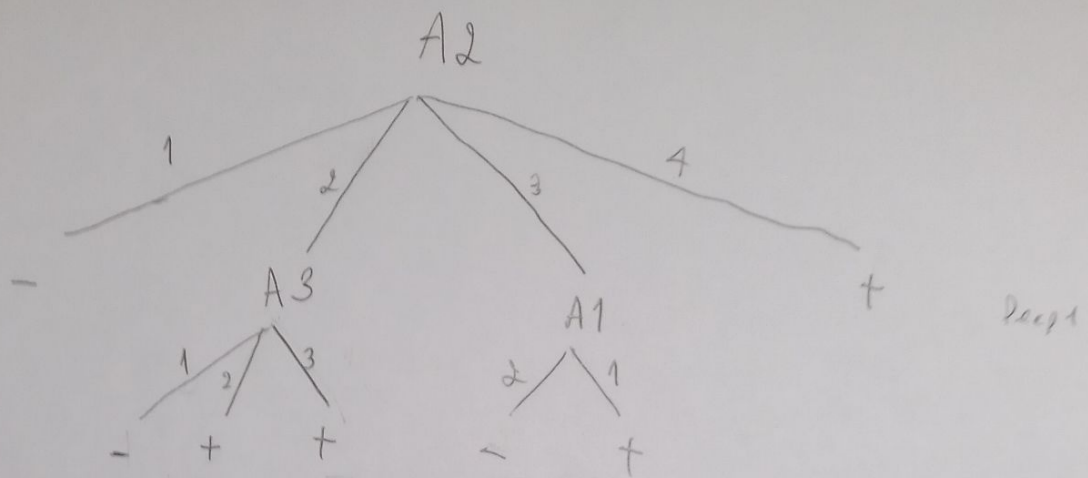


$$E(S) = 1$$

$$\text{Gain}(S, A1) = 1$$

$$\text{Gain}(S, A3) = 0$$

Node Deep 1 (3) เลือก A1



Ans .