

**Question 1.** By increasing growth rate:

$(\log \log n)^2$ ,  $\log n$ ,  $n(\log n)^2$ ,  $n\sqrt{n}$ ,  $\{n^2, 2^{2\log n}\}$ ,  $2^n$

**Question 2.** Deepest leaf is at  $\log_3 n$ ; least-depth leaf is at  $\log_9 n = (\log_3 n)/2$ ;  $T(n)$  is  $O(n)$ .

**Question 3.**  $T(n) = T(n/3) + T(2n/3) + cn$ .  $T(n)$  is  $O(n \log n)$ .

**Question 4.** If  $X = a b a c l a v a$  and  $Y = b l a b l a$  then the  $c$  table is:

0	0	0	0	0	0	0
0	0	0	1	1	1	1
0	1	1	1	2	2	2
0	1	1	2	2	2	3
0	1	1	2	2	2	3
0	1	2	2	2	3	3
0	1	2	2	2	3	4
0	1	2	2	2	3	4
0	1	2	2	2	3	4

If your exam booklet had  $X = b l a b l a$  and  $Y = a b a c l a v a$  then  $c$  is the transpose of the above (i.e., a  $7 \times 9$  matrix whose  $i$ th row is the  $i$ th column of the above).