The professor told that 1 + X to the N is the generating function for the sequence, and choose 0 and choose 1 and choose 2 up to N choose N, and then 0, 0, 0, if you're thinking why,
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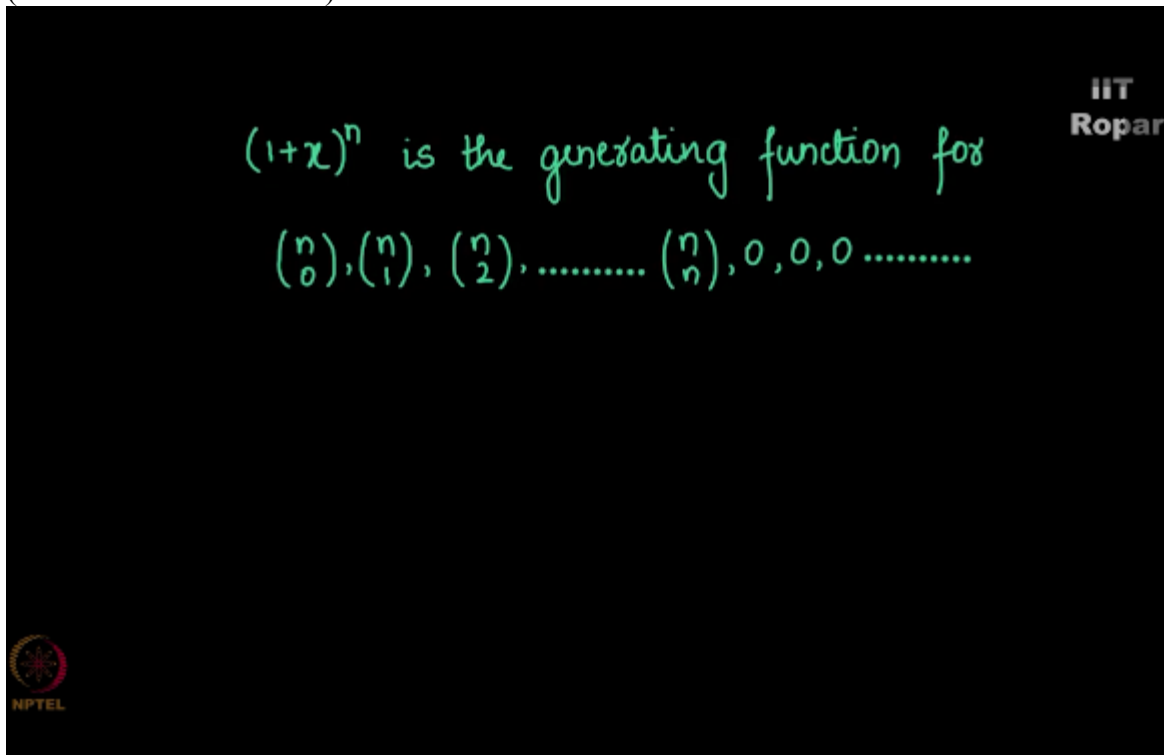
I hope you had figured it out, if not let me tell you the answer, we know that 1 + X to the N is the binomial expansion which gives N choose 0 into X to the 0 + N choose 1 into X + N choose 2 into X square + N choose 3 into X cube, so on + N choose N into X to the N,
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$(1+x)^n$ is the generating function for

$\binom{n}{0}, \binom{n}{1}, \binom{n}{2}, \ldots\ldots\ldots \binom{n}{n}, 0, 0, 0 \ldots\ldots\ldots$

$(1+x)^n = \binom{n}{0}x^0 + \binom{n}{1}x + \binom{n}{2}x^2 + \binom{n}{3}x^3 + \ldots\ldots + \binom{n}{n}x^n$

so now do you see that it is nothing but N choose 0 into 1 + N choose 1 into X, so on up to N choose N into X to the N, do you see that the coefficients are N choose K, where K is from 0 to N,

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$(1+x)^n$ is the generating function for

$\binom{n}{0}, \binom{n}{1}, \binom{n}{2}, \ldots\ldots\ldots \binom{n}{n}, 0, 0, 0 \ldots\ldots\ldots$

$(1+x)^n = \boxed{\binom{n}{0}}x^0 + \boxed{\binom{n}{1}}x + \boxed{\binom{n}{2}}x^2 + \boxed{\binom{n}{3}}x^3 + \ldots\ldots + \boxed{\binom{n}{n}}x^n$

$$\binom{n}{k} \qquad 0 \leq k \leq n$$

that's why the professor mentioned that $1 + X$ to the N is the function which generates the sequence, N choose 0, N choose 1, N choose 2, N choose 3 so on up to N choose N, and then 0, 0, 0, 0, 0, so on.