

Today's IIScian Approach

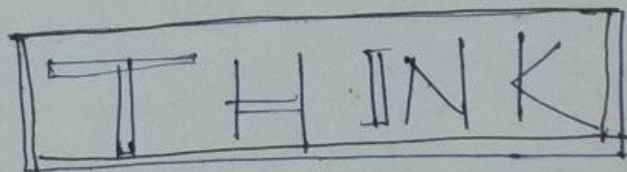
Interview Prep for **Ph.D.**:-

Let f be meromorphic function on \mathbb{C} such that $|f(z)| \geq |z|$ at each z where f is holomorphic. Then

- (a) No such f exists
- (b) Such an f is entire
- (c) There is a unique f satisfying the given conditions
- (d) There is an $A \in \mathbb{C}$ with $|A| \geq 1$ s.t. $f(z) = Az \quad \forall z \in \mathbb{C}$.

Sol:-

How to



First recall some basic facts!

- (*) If f and g are entire function and $|f| \leq |g|$ then $f = \alpha g$ for some $\alpha \in \mathbb{C}$ (Justify)
- If f is meromorphic on $\mathbb{C} \Rightarrow f = \frac{g}{h}$ where g and h are holomorphic on \mathbb{C}
- Thus $|\frac{g}{h}(z)| \geq |z| \Rightarrow |h(z)z| \leq |g(z)|$
- Hence apply (*) (b) and (d) are write option.