

CS09 304 Discrete Computational Structures

Question Bank – Module IV- Recurrence Relation

CS09 304 Question Bank for Module IV(Recurrence Relation)

Topic	Question	Mark	Month & Year	Regulation
Homogeneous linear first order	Solve $f(n) = f(n-1)$ where $f(0) = 1$	5	2011	09
Homogeneous linear second order	Solve the recurrence relation assuming n is even. $F(n)=F(n-2)+1$ where $F(0) = 1$	2	2012 2011 2010	09
Non homogeneous second order	Solve $f(n) - 5f(n-1) - 6f(n-2) = 2^n + n$	10	2011	09
Non homogeneous higher order	Solve $f(n) - f(n-1) + 4f(n+2) = (n+1)2^n$ where $f(0) = 0, f(1)=1$	10	2010	09
Solution using generating function	Using generating function solve $f(n) = f(n-1)+f(n-2)$ where $f(0) = 1$ and $f(1) = 1$	10	2012 2011	09
	Using generating function solve $f(n) = 3f(n-1) + 2$ where $f(0) = 1$	10	2010	09
Proof by induction	Show that $1.2.3 + 2.3.4 + 3.4.5 + \dots + n(n+1)(n+2) = \frac{n(n+1)(n+2)(n+3)}{4} \quad n \geq 1$	10	2012	09