

# **EN 09 401 B**

# **Engineering Mathematics IV**

*Question Bank – Module II- Z -Transforms*

EN 09 401B Engineering Mathematics IV Question bank for Module II

Topic	Question	Mark	Month & Year	Regulation
<b>Z-Transform</b>	Find the z-transform of $\cos\left(\frac{n\pi}{2}\right)$	2	April 2013	09
	Find the z-transform of $n^2$	2	May 2012	„
	Find the z-transform of $\frac{1}{n}$	2	June 2011	„
	Find the z-transform of $f * g$ where $f(n) = u(n)$ and $g(n) = 2^n u(n)$	5	April 2013	„
	Find the z-transform of (i) $\frac{1}{n(n+1)}$ (ii) $e^{3t} \sin 2t$ (iii) $(t+T)e^{-(t+T)}$	10	June 2011	„
<b>Inverse Z-Transform</b>	Find the inverse z-transform of $\frac{8z^2}{(2z-1)(4z-1)}$	5	June 2011	„
	Find the inverse z-transform of $\frac{10z}{z^2-3z+2}$ by long division method.	10	May 2012	„
	Find the inverse z-transform of $\frac{z^2+3}{(z-1)(z^2+1)}$ by residue method.	10	May 2012	„
	Find the inverse z-transform of $\frac{z}{z^2-2z+2}$ by residue method.	10	April 2013	„
	Find the inverse z-transform of $\frac{z^3-20z}{(z-2)^3(z-4)}$ by partial fraction method	10	April 2013	„
	Find the inverse z-transform of $\frac{z^3-20z}{(z-2)(z^2+4)}$ by residue method.	10	June 2011	„
<b>Solution of Difference Equation</b>	Solve $f(n+2)-3f(n+1)+2f(n)=0$ if $f(0)=0$ & $f(1)=1$ using z-transform	5	June 2011	„
	Solve $u_{k+1} + u_k = 0$ if $u_0 = 0$ using z-transform	5	May 2012	„
	Solve $u_{n+2} - 4u_{n+1} + 4u_n = 0$ given $u_0 = 0$ and $u_1 = 1$	10	April 2013	„