



**SRM INSTITUTE OF SCIENCE AND TECHNOLOGY
RAMAPURAM CAMPUS**

DEPARTMENT OF MATHEMATICS

18MAB201T-Transforms and Boundary Value Problems

Unit 5 : Z -Transform

Assignment 5

Year/Sem : II/III

Branch: Common to All branches except B.Tech (Business Systems)

Total marks: 20Marks

PART B (10x2=20 marks)

1. Find $Z(na^n)$.
2. Find $Z(r^n \cos n\theta)$.
3. Find $Z(n(n-1))$.
4. Find $Z\left(\cos\left(\frac{n\pi}{2}\right)\right)$.
5. Find $Z(\sin n\theta)$.
6. Find $Z(r^n e^{in\theta})$.
7. Find the residue of $F(z)z^{n-1} = \frac{z}{(z-1)(z-2)}$ at its Smallest pole.
8. Find $Z^{-1}\left(\frac{8z}{z-2} + \frac{5z}{z+4}\right)$.
9. Find $f(0)$ if $F(z) = \frac{8z}{(z-4)(z-3)}$.
10. Find $Y(z)$ if $y_{n+2} + y_n = 0$, $y_0 = 0$, $y_1 = -3$