

YILDIZ TECHNICAL UNIVERSITY

EHM2821

Engineering Mathematics

AUTUMN 2017

Dr. Peyman Mahouti

Midterm Exam 2

15 DECEMBER 2017

Full Name : _____

Student No.: _____

Group No.: _____

Attendance List No.: _____

* papers with missing informations will not be evaluated

Q1	Q2	Q3	Sum

Q:1)

Q:2)

Q:3)

Handy Formulas

$f(z) = \sum_{n=0}^{\infty} a_n (z - z_0)^n \quad (z - z_0 < R_0) \quad \text{where} \quad a_n = \frac{f^{(n)}(z_0)}{n!}$
$f(z) = \sum_{n=0}^{\infty} a_n (z - z_0)^n + \sum_{n=1}^{\infty} \frac{b_n}{(z - z_0)^n} \quad (R_1 < z - z_0 < R_2)$ $a_n = \frac{1}{2\pi i} \oint_C f(z) dz \quad b_n = \frac{1}{2\pi i} \oint_C f(z) dz$
$f(z) = \frac{p(z)}{q(z)}, \quad q(z_0) = 0, \quad q'(z_0) \neq 0, \quad \text{Res}(f; z_0) = \frac{p(z_0)}{q'(z_0)}$
$\text{Res}(f; z_0) = \lim_{z \rightarrow z_0} \frac{1}{(m-1)!} \frac{d^{m-1}}{dz^{m-1}} [(z - z_0)^m f(z)]$

Time Limit 70 Minutes

Good Luck.