Math-202 Semester-112 QUIZ V

NAME: S.No. ID:

Maximum Marks: 15 Section:07 Time Allowed: 45 minutes

(1) Find two power series solutions of $y'' + x^2y' + xy = 0$ about the ordinary point $x = 0$.

(2) Determine the singular points of the following differential equation. Classify each singular point as regular or irregular

$$(x^2 + x - 6)y'' + (x + 3)y' + (x - 2)y = 0.$$

(3) Show that the indicial roots of the singularity of the differential equation $x^2y'' + (x - \frac{2}{9})y = 0$ do not differ by an integer.