

## QUIZ 2

**Q1.** Find the general solution of the differential equation

$$x^3 y''' - xy' = 0, \quad x > 0.$$

**Q2.** Determine only the form of the particular solution  $y_p$  of the differential equation

$$y^{(4)} - 81y = 9x^4 e^{2x} + 9x \sin 9x - 9e^{-2x} \cos 2x + 9x^2 \sin 2x$$

**Q3.** Determine a homogeneous linear differential equation with constant coefficients having the fundamental set of solutions:

$$y_1 = e, \quad y_2 = 7x, \quad y_3 = e^{-9x} \cos 7x, \quad y_4 = e^{-9x} \sin 7x, \quad y_5 = 10x^2.$$