



# ISHIK UNIVERSITY

Faculty of Engineering  
Department of : Petroleum  
Course: Differential Equations  
Semester : Fall Semester

Code: **PTR221**

Date :  
Duration : 90 minutes  
Type of Exam:

## Question Bank

**Q1: Convert this second order differential equation to two first order linear differential equations.**

$$y'' - 2y' + 3y = 5$$

**Q2: Solve the following differential equations, use separable variable method**

1.  $2y \frac{dy}{dx} = xy^2$

2.  $\frac{dy}{dx} = \frac{x^2}{3y}$

**Q3: Solve this homogenous differential equations, use separable variable method**

$$(9x + 2y) \frac{dy}{dx} = 3x - y$$

**Q4: Solve the following homogenous differential equations**

1.  $y'' - 3y' - 18 = 0$

2.  $y'' - 4y' - 5y = 0$

3.  $3y'' + 7y' - 6y = 0$