

King Fahd University of Petroleum and Minerals  
Department of Mathematics and Statistics  
Math-301 Semester-142 QUIZ V

NAME:

S.No.

ID:

Maximum Marks: 10

Section:06

Time Allowed: 35 minutes

(1) Find the eigenvalues and eigenfunctions of the Sturm-Liouville problem:

$$y'' + \lambda y = 0, \quad y(L) = 0, \quad y'(0) = 0$$

(2) Expand  $f(x) = x, 0 < x < 3$  in a Fourier-Bessel series using Bessels functions of order one that satisfy the boundary condition  $J_1(3\alpha) = 0$ .