

King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
Math-301 Semester-132 QUIZ IV

NAME:

S.No.

ID:

Maximum Marks: 10

Section:06

Time Allowed: 30 minutes

(1) Show that the set $\{\sin x, \sin 3x, \sin 5x, \dots\}$ is orthogonal on the interval $[0, \frac{\pi}{2}]$.

(2) Expand

$$f(x) = \begin{cases} 0, & -1 < x < 0, \\ x, & 0 \leq x < 1. \end{cases}$$

in a Fourier series.

(3) Expand $f(x) = x^2$, $0 < x < L$ in a cosine series.