班級：_____學號：_____姓名：_____

國立台灣海洋大學河海工程研究所 BEM 2006 第 4 次作業

1. In the course, we have derived the fundamental solution of

$$\frac{d^2U(x,s)}{dx^2} = \delta(x-s), \quad -\infty < x < \infty$$

by using Fourier transform, inverse Fourier transform and residue theorem. Please extend the second order ODE to fourth order ODE.

$$\frac{d^4U(x,s)}{dx^4} = \delta(x-s), \quad -\infty < x < \infty$$

(1). Is *U(x,s)* ***singular ?***

(2). Is *U(x,s) symmetric ?*

(3). Is *U(x,s) degenerate form ?*

(4). 3D Plot U(x,s) and contou plot.

Ref:

1. 鍾壽國, 推廣的留數定理及其應用, 武漢大學出版社, 武漢, 1993.(路見可審校)
2. 陳鈺文, 複變數對偶邊界元素法研究, 海大河工所碩士論文, 1988.