

淡江大學九十三年學年度進修學士班轉學生招生考試試題 21-1

系別：電機工程學系三年級

科目：工程數學

准帶項目請打「○」否則打「×」	
×	簡單型計算機

節次：7月14日第4節
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I. $y' + y = \sin x$ (20%)

II. $y'' - 4y' + 53y = 0$, $y(\pi) = -3$, $y'(\pi) = 2$
(20%)

III. Find the inverse Laplace transform of the following function $\frac{4}{s^2 + 4s + 20}$. i.e., $\int^{-1} \left[\frac{4}{s^2 + 4s + 20} \right] = ?$ (20%)

IV. Using the Fourier transform to solve $y' - 4y = H(t)e^{-4t}$ (20%)

V. $\oint_P \frac{4iz - 1}{\sin z} dz$, ... P (the closed path) encloses $0, \pi, 2\pi$ and $-\pi$. (20%)