



Question one: (12 points)

Decide whether each of the following statements **True** or **False**

$$1. \ell^{-1}\left(\frac{1}{(s-1)^2(s^2+4s+8)}\right) = A(t-1)e^{t-2} + B \cos(2t-4) + C \sin 2t$$

$$2. \text{ If } h(t) = \int_0^t e^{2t-2\tau} \cos \pi \tau d\tau, \text{ then } \ell(h(t)) = \frac{s}{(s-2)(s^2+\pi^2)}$$

$$3- \ell^{-1}\left\{\frac{s+1}{s^2+2s+5}\right\} = e^t \cos 2t$$

$$4- \ell\{\delta(t-3)\} = e^{3s}$$

$$5- \ell\{e^{2t}t^3\} = \frac{6}{(s-2)^4}$$

$$6- \ell^{-1}\left\{\frac{e^{-3s}}{(s-3)^3+1}\right\} = u_3(t)e^{3t} \sin(t-3)$$

$$7- \int_0^{\infty} e^{3t-st} \sin 3t dt = \frac{3}{(s-3)^2+9}$$

$$8- \text{ If } g(t) = \begin{cases} 0, & 0 \leq t < 2 \\ t^2 - 4t + 4, & t \geq 2 \end{cases}, \text{ then } \ell\{g(t)\} = \frac{2e^{-2s}}{s^3}$$

Course's Name : Engineering Mathematics 2
Course's Number :
Exam's Period : 1 Hour
Questions' Number :
Total Mark :30
Pages' Number :

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Instructor's Name :.....
Student's Name:
Student's Number:
Section's Number:
Exam's Date :17/4/2017
Form :A

Second Exam
Second Semester 2016/2017

Question Two:

(4 points)

Find $\ell^{-1} \left\{ \frac{(s-2)e^{-3s}}{s^4 - 4s^3 + 3s^2} \right\}$ (Do not evaluate the constant coefficients)

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Question Three:

(7points)

Solve the I.V.P

$$y'' + 3y' + 2y = \sin t + \delta(t - 2\pi) \quad , y(0) = 0 \quad , y'(0) = 0$$

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Question Four:

(7 points)

Find

1) $\ell\{u_5(t)e^{3t} + 3e^{t-3} + 2\}$

2) $\ell\{t^2 \cosh t\}$

Good Luck