Subject: Engineering Mathematics-III

Question Bank

Sr. No	Question		
	UNIT-I		
1	Find $L[e^{-t}(4t^3 + \cos(4t+7))]$		
2	Find $L[t^2(sin^2 2t.cos3t)]$		
3	Find $L\left[\frac{sinh2t}{\sqrt{t}}\right]$		
4	Find $L\left[e^{4t}sinht.\frac{sin3t}{t}\right]$		
5	Find $L[t^2e^{-6t}cosh2t]$		
6	Find $L[t^2e^{2t}sin^2t]$		
7	Find $L[t^3e^{-t}cost]$		
8	Find $L\left[e^{-3t}\int_0^t \frac{sin4t}{t}dt\right]$		
9	Find $L\left[\int_0^t te^t(cosh2t - sinh4t)dt\right]$		
10	Find $L\left[\int_0^t \frac{sin^2t}{t^2}dt\right]$		
11	Find $L\left[\int_0^t \frac{e^{\frac{t}{3}}sin\frac{t}{4}}{t}dt\right]$		
12	$L\left[\int_0^t \left(\frac{e^u - cos2u}{u}\right)e^{-t}du\right]$		
13	$L\left[t\int_0^t e^{7-4t}sin3tdt\right]$		
14	$\left[\int_0^t a^u ucoshu\, du\right]$		
15	Evaluate $\int_0^\infty t.e^{-3t}cos4t.dt$		
16	Evaluate $\int_0^\infty t^2.e^{2t}.sinh3t.dt$		
17	Evaluate $\int_0^\infty e^{-2t}.cos^3t.dt$		

18	Evaluate $\int_0^\infty t^3.e^{-t}.sin2t.dt$		
19	Evaluate $\int_0^\infty \frac{cost-cos4t}{t}.dt$		
20	Evaluate $\int_0^\infty \frac{cos5t-cos2t}{t}.dt$		
21	Evaluate $\int_0^\infty e^{-2t}.\frac{sint}{t}.dt\,A$		
22	Evaluate $\int_0^\infty e^{4t}.sin^3t.dt$		
23	Evaluate $\int_0^\infty e^{4t.}\frac{sinht}{t}.dt$		
24	Evaluate $\int_0^\infty e^{-2t}.\frac{sinht.sint}{t}.dt$		
25	Evaluate $\int_0^\infty e^{-t}.\frac{1-cost}{t}.dt$		
26	Evaluate $\int_0^\infty e^{-t}.(t+3)^3.dt$		
27	Evaluate $\int_0^\infty e^{-2t}.(t+1)^2sint.dt$		
28	Evaluate $\int_0^\infty e^{-3t}.(t+3)^2.cos4t.dt$		
29	Evaluate $\int_0^\infty te^{-3t}U(t-2)dt$		
30	Evaluate $\int_0^\infty e^{-t}tsintU(t-\pi)dt$		
31	Evaluate $\int_0^\infty sinh2t\left[\int_0^t e^{u/3}sinh3udu\right].dt$		
32	Evaluate $\int_0^\infty \int_0^t \frac{e^{-5t}sin2u}{u}du$		
33	Evaluate $\int_0^\infty \frac{sin^3t}{t}.dt$		
34	Evaluate $\int_0^\infty e^{3t}cos^3t\,dt$		
35	Evaluate $\int_0^\infty \frac{1-cos2t}{t^2}dt$		
36	Find $L\{(2t^2+3).H(t-1)\}$		
37	Find $L[(1+2t-3t^2+4t).H(t-1)]$		
38	Find $L\left[\int_0^t te^{-2t}.U(t-1)dt\right]$		
39	Find $L\left[\int_0^t sint.H(t-\pi)dt\right]$		

40	Find $L[t^4U(t-2)]$		
41	Find $L[e^{-t}sint.U(t-\pi)]$		
42	Find $L[cosht.U(t-a)]$		
43	Find $L[e^{-t}tsint.U(t-\pi)]$		
46	Find $L[e^{-t}cost.U(t+\pi)]$		
47	Find $L[e^{2t}tsint.U(t+\pi)]$		
48	Find $L^{-1}\left[\frac{6s-4}{s^2-4s+20}\right]$		
49	Find $L^{-1}\left[\frac{8s+20}{s^2-12s+32}\right]$		
50	Find $L^{-1}\left[\frac{se^{4-3s}}{s^2-4s+29}\right]$		
51	Find $L^{-1}\left[\frac{e^{\frac{-\pi}{2}s}+e^{\frac{-3\pi}{2}s}}{s^2+1}\right]$		
52	Find $L^{-1}\left[log\left(\frac{s^2+b^2}{s^2+a^2}\right)\right]$		
53	Find $L^{-1}\left[cot^{-1}\left(\frac{s-2}{3}\right)\right]$		
54	Find $L^{-1}\left[\frac{(s+2)^2}{(s^2+4s+8)^2}\right]$		
55	Find $L^{-1}\left[\frac{1}{(s-2)^4(s+3)}\right]$		
56	Find $L^{-1}\left[tan^{-1}\left(\frac{2}{s^2}\right)\right]$		
57	Find $L^{-1}\left[\frac{1}{s}log\frac{s}{s-1}\right]$		
58	Find $L^{-1}\left[\frac{1}{2s}log\left(1-\frac{a^2}{s^2}\right)\right]$		
59	Find $L^{-1}\left[tan^{-1}\left(\frac{1}{s}\right)\right]$		
60	Find $L^{-1}\left[log\left[\frac{s^2-a^2}{s^2}\right]\right]$		
61	Find $L^{-1}\left[\frac{1}{2}log\left[\frac{s^2+b^2}{(s-a)^2}\right]\right]$		

62	Find $L^{-1}\left[log\left[\frac{s+2}{s+1}\right]\right]$		
63	By using Convolution Theorem Find $L^{-1}\left[\frac{1}{(s-1)(s-2)}\right]$		
64	By using Convolution Theorem Find $L^{-1}\left[\frac{1}{(s+3)(s-1)}\right]$		
65	By using Convolution Theorem Find $L^{-1}\left[\frac{1}{s^2(s-a)}\right]$		
66	By using Convolution Theorem Find $L^{-1}\left[\frac{1}{(s+2)^2(s-2)}\right]$		
67	By using Convolution Theorem Find $L^{-1}\left[\frac{s^2}{(s+4)^2}\right]$		
68	By using Convolution Theorem Find $L^{-1}\left[\frac{1}{(s^2+9)^2}\right]$		
69	By using Convolution Theorem Find $L^{-1}\left[\frac{s}{(s^2+4)^3}\right]$		
71	Solve $y'' - 3y' + 2y = 12e^{-2t}$ with $y(0) = 2, y'(0) = 6$ by using L.T.		
72	Solve $y'' + 2y' + y = te^{-t}$ with $y(0) = 1, y'(0) = -2$ by using L.T.		
73	Solve $\frac{d^2y}{dt^2} + 2\frac{dy}{dt} + 5y = e^{-t}sint$ with $y(0) = 0, y'(0) = 1$ by using L.T.		
74	Solve $\frac{dy}{dt} + 2y(t) + \int_0^t y(t)dt = sint$ with $y(0) = 1$ by using L.T.		