

Agnihotri Engineering & GATE Classes

Scripting success stories

SECOND ORDER LINEAR DIFFERENTIAL EQUATION WITH VARIABLE COEFFICIENT

Q.1) Solve $(3-x)y'' - (9-4x)y' + (6-3x)y = 0$

Q.2) Solve $x^2y'' + xy' - y = 0$, given that $x + 1/x$ is one of its integral.

Q.3) Solve $xy'' + (1-x)y' - y = e^x$

Q.4) Solve $(1-x^2)y'' + xy' - y = x(1-x^2)^{3/2}$

Q.5) Solve $(x \sin x + \cos x)y'' - x \cos x y' + y \cos x = \sin x (x \sin x + \cos x)^2$

Q.6) Solve $y'' + 2x y' + (x^2+1)y = x^3 + 3x$

Q.7) Solve $y'' - x^{-1/2}y' + 1/4 x^{-2} (x + x^{1/2} - 8)y = 0$

Q.8) Solve $y'' - 2 \tan x y' + 5y = \sec x \cdot e^x$

Q.9) Solve $y'' + 4x.y + 4x^2y = 0$

Q.10) Solve $y'' - \cot x \cdot y' - \sin^2 x \cdot y = \cos x - \cos^3 x$

Q.11) Solve $y'' + (1 - 1/x) y' + 4x^2 y e^{-2x} = 4(x^2 + x^3) e^{-3x}$

Q.12) Solve $x.y'' - y' - 4x^3y = 8x^3 \sin x^2$

Q.13) Solve $y'' + \tan x.y' + y \cos^2 x = 0$

Q.14) Solve by method of variation of parameter to the followings

a) $(D^2 + 4)y = 4 \tan 2x$

b) $(D^2 + 1)y = x \sin x$

c) $x^2.y'' + x.y' - y = x^2 \cdot e^x$

d) $(D^2 + 1)y = 1/(1 + \sin x)$

Q.15) Solve the following By series method ?

a) $(1 + x^2)y'' + x.y' - y = 0$

b) $(1 - x^2)y'' - x.y' + 4y = 0$

c) $y'' + x.y' + y = 0$

d) $x.y'' + y' - y = 0$

e) $4x.y'' + 2.y' + y = 0$

f) $4x.y'' + 2(1-x)y' + y = 0$ (RGTU 2010)

Classes on (ED, BEEE, M1, M2, M3, NA, CONTROL, DSP & other GATE oriented Engineering Subjects)

By :- Agnihotri sir (7415712500) Infront C.M. House, Sherpua, Vidisha