M-III Online Test

mihirpimparade@gmail.com Switch account

* Required

Email *

Your email

Division *

Option 1

. Particular Integral $\frac{1}{D+1}((\tan x + \tan^2 x))$

[A]$e^{-x}(\tan x - 1)$ [B] $(\tan x - 1)$ [C] $e^{x}(\tan x - 1)$ [D] $e^{x}(\tan x + 1)$

- A
- B
- C
- D

Name of Student *

Your answer

In solving differential equation $\frac{d^2y}{dx^2} + 4y = 4\,sec^2\,2\,x$by method of variation of Parameters, Complimentary function $= c_1\,cos\,2\,x + c_2\,sin\,2\,x$, Particular Integral $= u\,cos\,2\,x + v\,sin\,2\,x$ then v is equal to

[A] $log(sec\,2\,x + tan\,2\,x)$

[B] $-\,sec\,2\,x$

[C] $sec\,2\,x + tan\,2\,x$

[D] $log(tan\,2\,x)$

- A
- B
- C
- D

Question

.. the simultaneous linear differential equations $\frac{du}{dx} + v = sinx, \frac{dv}{dx} + u = cosx$, solution of u using D=$\frac{d}{dt}$ is obtain from

a)$(D^2 + 1)u = 2\,cos\,x$

b)$(D^2 - 1)u = 0$

C)$(D^2 - 1)u = sin\,x - cos\,x$

d)$(D^2 - 1)v = -2\,sin\,x$

- a
- b
- c
- d

Roll No. *

Your answer

Question

For the differential equation $(2x+3)^2\frac{d^2y}{dx^2}-2(2x+3)\frac{dy}{dx}-12y=6x,$ complimentary function is given by

[A] $c_1(2x+3)^3+c_2(2x+3)^{-1}$ [B] $c_1(2x+3)^{-3}+c_2(2x+3)$

[C] $c_1(2x+3)^3+c_2(2x+3)^2$ [D] $c_1(2x-3)^2+c_2(2x-3)^{-1}$

- a
- b
- c
- d

Particular Integral $\frac{1}{D+2} e^{-x} e^{e^x}$ where $D \equiv \frac{d}{dx}$ is

[A] $e^{2x} e^{e^x}$ [B] $e^{-2x} e^{e^x}$ [C] e^{e^x} [D] $e^{-x} e^{e^x}$

- A
- B
- C
- D

*

Particular Integral of Differential equation

$(D^4 + 10D^2 + 9)y = \sin 2x + \cos 4x$ is

[A] $-\frac{1}{23}\sin 2x - \frac{1}{105}\cos 4x$

[B] $\frac{1}{15}\sin 2x + \cos 4x$

[C] $-\frac{1}{15}\sin 2x + \frac{1}{105}\cos 4x$

[D] $-\frac{1}{15}\sin 2x + \frac{1}{87}\cos 4x$

- A
- B
- C
- D

Question

. Solution of symmetric simultaneous DE $\frac{dx}{x} = \frac{dy}{y} = \frac{dz}{z}$ is

A) $x = c_1 y, y = c_2 z$ B) $x - y = c_1 z, y - z = c_2 x$

C) $x + y = c_1, y + z = c_2$ D) $x + y = c_1, y - z = c_2$

- a
- b
- c
- d

Question

The differential equation $(x+2)^2 \frac{d^2y}{dx^2} + 3(x+2)\frac{dy}{dx} + y = 4\,sin[log(x+2)]$
o utting $x + 2 = e^z$ and using $D \equiv \frac{d}{dz}$ is transformed into

[A] $(D^2 + 3D + 1)y = 4\,sin(log\,z)$ [B] $(D^2 + 1)y = 4\,sin\,z$

[C] $(D^2 + 2D + 1)y = 4\,sin[log(x+2)]$ [D] $(D^2 + 2D + 1)y = 4\,sin\,z$

- a
- b
- C
- d

The solution of differential equation $\frac{d^3y}{dx^3} - 5\frac{d^2y}{dx^2} + 8\frac{dy}{dx} - 4y = 0$ is

[A] $c_1e^x + (c_2x + c_3)e^{2x}$

[B] $c_1e^x + c_2e^{2x} + c_3e^{3x}$

[C] $(c_2x + c_3)e^{2x}$

[D] $c_1e^{-x} + (c_2x + c_3)e^{-2x}$

- A
- B
- C
- D

*

Particular Integral of Differential equation $\frac{d^2y}{dx^2} - 2\frac{dy}{dx} + y = xe^x \sin x$ is

[A] $-e^x(x\sin x + 2\cos x)$

[B] $e^x(x\sin x - 2\cos x)$

[C] $(x\sin x + 2\cos x)$

[D] $-e^x(x\cos x + 2\sin x)$

- A
- B
- C
- D

!

*

Particular Integral of Differential equation

$$\frac{d^3y}{dx^3} - 4\frac{dy}{dx} = 2\cosh 2x$$ is

[A] $\frac{1}{4}\cosh 2x$

[B] $\frac{x}{8}\cosh 2x$

[C] $\frac{x}{4}\cosh 2x$

[D] $\frac{x}{4}\sinh 2x$

- A
- B
- C
- D

*

Particular Integral of Differential equation $(D^2+6D+9)y=e^{-3x}x^{-3}$ is

[A] $\frac{e^{-3x}}{2x}$ [B] $e^{-3x}x$

[C] $\frac{e^{-3x}}{12x}$ [D] $(c_1x+c_2)e^{-3x}$

- A
- B
- C
- D

*

Particular Integral of Differential equation $\frac{d^2y}{dx^2}+2\frac{dy}{dx}+y=e^{-x}\cos x$ is

[A] $e^x\cos x$ [B] $-e^{-x}\sin x$

[C] $-e^{-x}\cos x$ [D] $(c_1x+c_2)e^{-x}$

- A
- B
- C
- D

*

Particular Integral of Differential equation $(D-1)^2 y = e^x \sqrt{x}$ is

[A] $\frac{4}{15} e^x x^{5/2}$ [B] $\frac{8}{105} e^x x^{7/2}$

[C] $e^x x^{7/2}$ [D] $\frac{3}{8} e^x x^{-5/2}$

- A
- B
- C
- D

In solving differential equation $\frac{d^2y}{dx^2} - 6\frac{dy}{dx} + 9y = \frac{e^{3x}}{x^2}$ by method of variation of parameters, Complimentary function $= c_1 x e^{3x} + c_2 e^{3x}$,
Particular Integral $= uxe^{3x} + ve^x$ then $u$is equal to

[A] $-\frac{2}{x^3}$ [B] $\frac{1}{x}$ [C] $-\frac{1}{x}$ [D] $-\log x$

- A
- B
- C
- D

Submit

Clear form