AOD Quiz 2

This test/quiz is accepting submissions until Thursday, June 4, 2020 at 2:50 pm

Question 1 (1 point)

What will be the trial solution for finding P.I. to $y'' + y = xsinx + sinx$?

a. $y_p = (ax + b)sinx + (cx + d)cosx$
b. $y_p = (ax + b)xsinx + (cx + d)cosx$
c. $y_p = (ax + b)sinx + (cx + d)xcosx$
d. $y_p = (ax + b)xsinx + (cx + d)xcosx$

a	d
b	b
c	a
d	c

Question 2 (1 point)

Which one of the following is true for $3x^2y'' + x(x + 2)y' + xy = 0$?

a. $x = 0$ is an ordinary point.
b. $x = 0$ is a singular point.
c. $x = 1$ is singular point.
d. $x = 1$ is not an ordinary point.

a	a
b	c
c	d
d	b

Question 3 (2 points)

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Laplace transform of $f(t) = \begin{matrix} tsint & 0 < t < \pi \\ 0 & t \geq \pi \end{matrix}$ is given by

a. $\frac{e^{-\pi s}}{(s^2+4)}$

b. $\frac{se^{-\pi s}}{(s^2+4)}$

c. $\frac{2se^{-\pi s}}{(s^2+4)^2}$

d. $\frac{2e^{-\pi s}}{(s^2+4)^2}$

- (a) a
- (b) b
- (c) c
- (d) d

Question 4 (1 point)

If $A = \begin{bmatrix} 1 & 2 & -3 \\ 0 & 2 & 1 \\ 0 & 0 & 3 \end{bmatrix}$, what are the Eigen values of $A^3 - 3A^2 + 3A - I$?

- (a) 8,27,64
- (b) 1,8,27
- (c) 8,27,56
- (d) 1,2,3

Question 5 (1 point)

Write the function in terms of Heaviside step function: $f(t) = \begin{cases} 2 & t < 1 \\ 3 & 1 \leq t < 4 \\ 1 & 4 \leq t < 6 \\ 5 & t \geq 6 \end{cases}$

a. $2u_0(t) + u_1(t) + 2u_4(t) - 4u_6(t)$

b. $2u_0(t) - u_1(t) - 2u_4(t) - 4u_6(t)$

c. $2u_0(t) + u_1(t) - 2u_4(t) - 4u_6(t)$

d. $2u_0(t) + u_1(t) - 2u_4(t) + 4u_6(t)$

- (a) c
- (b) a
- (c) b
- (d) d

Question 6 (1 point)

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If $\begin{bmatrix} -1 \\ 2 \\ 2 \end{bmatrix}$ is an Eigen vector to $A = \begin{bmatrix} 1 & 2 & -3 \\ 0 & 2 & 1 \\ 0 & 0 & 3 \end{bmatrix}$, find Eigen vector to $A^3 - 3A^2 + 3A - I$.

- a [-1 2 2]
- b [2 1 -2]
- c [1 -2 -2]
- d [2 1 2]

Question 7 (2 points)

The power series solution to $y' + y = 0$ is given by

a. $y = c_0\left(1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \cdots\right)$

b. $y = c_0\left(1 - x + \frac{x^2}{2!} - \frac{x^3}{3!} + \cdots\right)$

c. $y = c_0\left(1 + x + \frac{x^2}{2} + \frac{x^3}{3} + \cdots\right)$

d. $y = c_0\left(1 + x + \frac{x^2}{2^2} + \frac{x^3}{3^3} + \cdots\right)$

- a a
- b b
- c d
- d c

Question 8 (1 point)

Solution to $y'' - 6y' + 8y = e^{2x}$ is given by

a. $y = c_1 cos2x + c_2 sin2x - \frac{xe^{2x}}{2}$

b. $y = c_1 e^{2x} + c_2 xe^{2x} + \frac{e^{2x}}{2}$

c. $y = c_1 e^{2x} + c_2 e^{4x} - \frac{xe^{2x}}{2}$

d. $y = c_1 e^{2x} + c_2 xe^{4x} + \frac{e^{2x}}{2}$

- a d
- b a
- c b
- d c

Submit

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