Started on	Friday, 9 July 2021, 6:00 PM
State	Finished
Completed on	Friday, 9 July 2021, 6:30 PM
Time taken	29 mins 24 secs
Grade	**8.00** out of 10.00 (**80**%)

Question 1

Correct

Mark 2.00 out of 2.00

Which of the following is correct statement about the solution of the IVP $\frac{d^3y}{dx^3} - \frac{dy}{dx} = 0$, where $y(0) = 0, y'(0) = 1, y''(0) = 2$.

Select one:

- $y(1) + y'(1) < 0$
- $y(x) \to 0$ as $x \to -\infty$
- $y(1) + y'(1) > 0$

  ✓ \(y(x) = \frac{3}{2}e^x-\frac{1}{2}e^{-x}-2\).

  x +

  1

  2

  e−x − 2.
- $y(x) \to 0$ as $x \to \infty$

Your answer is correct.

The correct answer is: $y(1) + y'(1) > 0$

Question 2

Correct

Mark 2.00 out of 2.00

The equation of the family of orthogonal trajectories of the system of parabolas $y^2 = 2x + k$

Select one:

- $y = ce^{2x}$
- $y = ce^{-2x}$
- $y = ce^{x}$
- $y = ce^{-x}$ ✓

Your answer is correct.

The correct answer is: $y = ce^{-x}$

Question 3

Correct

Mark 2.00 out of 2.00

Consider the differential equation:

$\frac{d^2y}{dx^2} + 4\frac{dy}{dx} - 2y = 2x^2 - 3x + 6.$

A particular solution of this differential equation using the method of undetermined coefficients is given by $y_p(x) = ax^2 + bx + c$, where a, b, c are some specific constants such that $a + 2b + c$ equals:

Select one:

- -15 ✓
- -10
- -5
- 10

Your answer is correct.

The correct answer is: -15

Question 4

Incorrect

Mark 0.00 out of 2.00

Consider the IVP: $\frac{dy}{dx} = x^2 \sin y, \;\; y(1) = -2.$

Which of the following statements is correct?

Select one:

- This IVP has a unique solution defined in some sufficiently small interval about 1.
- This IVP has no solution. ✗
- This IVP does not have a unique solution in any interval about 1.
- None of the above statements is correct.

Your answer is incorrect.

The correct answer is: This IVP has a unique solution defined in some sufficiently small interval about 1.

Question 5

Correct

Mark 2.00 out of 2.00

Which of the following is correct:

Select one:

- $\cosh x$ is UC function. ✓
- $\cosh x$ is not a UC function.
- A particular integral for nonhomogeneous linear ODE can not be found using the method of undetermined coefficients if the nonhomogeneous term contains $\cosh x$.
- None of the above.

Your answer is correct.

The correct answer is: $\cosh x$ is UC function.