

ST. LAWRENCE HIGH SCHOOL A JESUIT CHRISTIAN MINORITY INSTITUTION



Worksheet-19

SUBJECT – MATHEMATICS

Pre-test

Chapter: Differential Equations

Class: XII

Date: 15.08.2020

(1 X 15 = 15)

Choose the correct option

- 1. Let x be the number of independent arbitrary constants in the general solution of a differential equation of order y, then
 - a. x = y
 - **b.** x > y
 - c. x < y
 - d. x is greater or equal to y

2. The degree of the differential equation $(\frac{dy}{dx})^2 - 2\frac{dy}{dx} = 3x$ is –

- a. 1
- b. 2
- **c.** 3
- d. 4

3. The order of the differential equation $\left(\frac{d^2y}{dx^2}\right)^3 - \left(\frac{dy}{dx}\right)^4 + 5y = x$ is –

- a. 1
- b. 2
- **c.** 3
- d. 4

4. $\frac{d^3y}{dx^3} + y = \sqrt[3]{1 + \frac{dy}{dx}}$ is a differential equation of degree – a. 1 b. 2 c. 3 d. 4

5. The order of differential equation obtained by the elimination of the arbitrary constants a, b, c from the equation ax + by + c = 0 is –

a. 2

b. 3

c. 1

d. None of these

6. The degree of the differential equation $\left(\frac{d^2y}{dx^2}\right)^2 + \frac{d^2y}{dx^2} - \left(\frac{dy}{dx}\right)^4 + \frac{dy}{dx} + y = 6x^3$ is -

- a. 4
- b. 3
- c. 2
- d. 1

7. The order of differential equation $\left(\frac{d^4y}{dx^4}\right)^3 - \frac{d^3y}{dx^3} = \sqrt{1 + \frac{dy}{dx}}$ is –

- a. 6
- **b.** 4
- c. 3
- d. 7

8. The differential equation whose solution is $(x - a)^2 + (y - b)^2 = r^2$ for all *a* and *b* where *r* is a constant is of degree –

- a. 1
- **b.** 2
- c. 3
- d. 4

9. The differential equation whose solution is $(x - a)^2 + (y - b)^2 = r^2$ for all *a* and *b* where *r* is a constant is of order –

- a. 1
- **b**. 2
- **c.** 3
- d. 4

10. The differential equation whose solution is V = A/r + B, where A, B are constant is of order

- a. 4
- b. 3
- c. 2
- d. 1

11. The differential equation whose solution is V = A/r + B, where A, B are constant is of degree –

- a. 2
- **b.** 3
- **c.** 4
- d. 1

12. The differential equation whose solution is $ax^2 + by^2 + c = 0$, where a, b, c are constant, is of degree –

- a. 0
- **b.** 1
- c. 2
- **d**. 3

13. The differential equation whose solution is $ax^2 + by^2 + c = 0$, where a, b, c are constant, is of order –

- a. 0
- b. 1
- c. 2
- d. 3

14. The integrating factor of the differential equation $(x + y + 1)\frac{dy}{dx} = 1$ is –

- a. *e*^{-y}
- b. e^x
- c. e^{-x}
- **d**. *e*^{*y*}

15. The integrating factor of the differential equation $x \log x \frac{dy}{dx} + y = \frac{2}{x} \log x$ is –

- a. *x*²
- b. $\log x$
- **c.** $\frac{1}{x}$
- **d.** $\frac{x}{x^2}$

<u> Prepared by :-</u>

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