

HARINGHATA MAHAVIDYALAYA
SEM-II 1 ST INTERNAL ASSESSMENT-2019

B.SC (Programme)

SUB:MATH-G-CC-T-02

SUBJECT TITLE: Differential Equations & Vector Calculus

Coverage: First order exact differential equations. Integrating factors, rules to find an integrating factor. First order higher degree equations solvable for x, y, p . Methods for solving higher-order differential equations. Basic theory of linear differential equations, Wronskian, and its properties.

Solving a differential equation by reducing its order.

Submission from 08.03.2019 to 14.03.2019

Answer any two questions

Maximum Marks :10

1. Show that the equation $(y^2 e^{xy^2} + 4x^3)dx + (2xye^{xy^2} - 3y^2)dy = 0$ is exact. Also find its solution.
2. Find the Wronskian of x, x^2, x^3 . Solve $\frac{dy}{dx} = \frac{y}{x} + \tan \frac{y}{x}$.
3. Solve $(\frac{d^2y}{dx^2} - 3\frac{dy}{dx} + 2y) = e^x + e^{2x}$
4. Find the solution of $x^2 \frac{d^2y}{dx^2} + 2x \frac{dy}{dx} = \log x$.