

Roll No.

Y – 3176
M.A./M.Sc. (Second Semester)
EXAMINATION, May/June 2021
MATHEMATICS
Paper – 202
(Differential Equation)
Time : Three Hours

Maximum Marks : 85

Minimum Pass Marks : 29

Note : Attempt *all* questions.

Unit-I

1. State and prove Peano's Existence theorem for scalar case. 17

Unit-II

2. Let u and v be non-negative continuous functions on some interval $t_0 \leq t \leq t_0 + a$. Also, let the function $f(t)$ be positive. 17

Unit-III

3. State and prove variation of constant formula. 17

Unit-IV

4. State and prove Abel-Liouville formula. 17

Unit-V

5. Explain transcritical bifurcation. 17