**SOUTH EASTERN UNIVERSITY OF SRI LANKA**

**SECOND EXAMINATION IN APPLIED SCIENCES – 2017 / 2018**

**SEMESTER II, MARCH / APRIL – 2020**

**MTM 22031 / MTM 22031 R(N) ELEMENTARY DIFFERENTIAL EQUATIONS**

Time Allowed: **One** hour

Answer **both** questions. All questions carry equal marks.

1. Find the values of the constants and such that the expression

is a solution of the differential equation

A calf weighed 40 kg at birth gains weight at the rate

where is the weight (in kilograms) and is the time (in years).

1. If the animal weighs 320 kg in one year, solve the differential equation.
2. The animal is sold when its weight reaches 550 kg. Find the time of sale.
3. What will be the maximum weight of the animal?

2. Solve the homogeneous equation

Solve the linear equation

If the solution satisfies the conditions and , then show that

Use the test for exactness to show that the following differential equation is exact and then solve it:

**END OF THE PAPER**