



Faculty of Computers and Artificial Intelligence
Cairo University



Final Evaluation

Programs: Networks and Internet
Technology & Software Engineering
Course Name: Math 2
Course Code: SMA 113
Examiner: Prof. Mihra M. Salama

Date: May 2020

(i) **Explain what is meant by each part of the following parts and write the required equations that can be used.**

(ii) **Give some examples to explain what you write.**

1. Formulation of an **O. D. E.**
2. General form of an **L. O. D. E.** of order n .
3. Condition for the solutions of the homogeneous **L. O. D. E.** with constant coefficients to be linearly independent set of solutions.
4. Solution of homogeneous and non-homogeneous **L. O. D. E.** with constant coefficients, and the difference between these solutions.
5. Methods for solving systems of **L. O. D. E.** with constant coefficients, and the difference between them.
6. If the standard form of Bernoulli's Equation is given, can you get from it: (i) a separable **O. D. E.** (ii) a Linear **O. D. E.** ?
7. Relation between Pulse and Impulse functions, and **L. T.** for both of them.

(I) **O. D. E. means Ordinary Differential Equation.**

(II) **L. O. D. E. means Linear Ordinary Differential Equation.**

(III) **L. T. means Laplace Transform.**