

بسم الله الرحمن الرحيم





شبكة المعلومات الجامعية التوثيق الالكتروني والميكرو فيلم



جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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University College of Women

for Art, Science and Education

Mathematics Department

Duadic and Consta Skew Cyclic Codes Over Certain Frobenius Rings

THESIS

SUBMITTED FOR THE DEGREE

Of

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(PURE MATHEMATICS)

BY

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COURSES

The student has passed the following courses in partial fulfillment of requirement for Ph.D. degree:

1. Cryptography: Theory and practice (3^{rd} ed), by Douglas R. Stinson.

2h per week

2. Elementary Number Theory: Primes, Congruences, and Secrets, by William Stein.

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ABSTRACT

ABSTRACT

RAMEZ Z. AL-SHORBASSI. Duadic and Consta Skew Cyclic Codes Over Certain Frobenius Rings. Doctor of Philosophy of Science dissertation (Pure Mathematics) . University College of Women for Art, Science and Education, Ain Shams University.

This thesis focuses on study $(\theta - \beta)$ -constacyclic codes and quadratic residue codes over the ring $\mathcal{R} = F_p + uF_p + vF_p + uvF_p + v^2F_p + uv^2F_p$.

In this thesis, we set some definitions and theorems which will be applied throughout the thesis, we study a class of rings called Frobenius rings. Linear codes, cyclic codes, Constacyclic codes, Skew cyclic codes, and Skew constacyclic codes are studied over the rings $F_q + uF_q + vF_q + uvF_q$ and $F_q + uF_q + vF_q + uvF_q + v^2F_q + uv^2F_q$. Finally quadratic residue codes are studied over the rings $F_p + uF_p + vF_p + uvF_p$, $F_p + vF_p + v^2F_p + v^3F_p$ and $F_p + uF_p + vF_p + uvF_p + v^2F_p + uv^2F_p$.

Keywords: Linear Codes, Cyclic Codes, Constacyclic Codes, Skew Cyclic Codes, Skew Constacyclic Codes, Duadic Codes, Quadratic Residue Codes.