

**CERTAIN IDENTITIES ASSOCIATED WITH EISENSTEIN
SERIES, GÖLLNITZ–GORDON IDENTITIES AND
COMBINATORIAL PARTITION IDENTITIES FOR THE
CONTINUED FRACTIONS OF ORDER SIXTEEN**

M. P. Chaudhary and A. Vanitha*

International Scientific Research and Welfare Organization
(Albert Einstein Chair Professor of Mathematical Sciences)
New Delhi - 110018, INDIA

E-mail : dr.m.p.chaudhary@gmail.com

*Department of Mathematics,
St. Philomena's College (Autonomous)
Bannimantap, Mysuru - 570015, INDIA

E-mail : a.vanitha4@gmail.com

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Abstract: The objective of this paper is to establish six new identities which depict interrelationships between Eisenstein series identities, Göllnitz–Gordon identities and combinatorial partition identities.

Keywords and Phrases: Continued fraction, Eisenstein series, combinatorial partition identities.

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1. Introduction

Throughout this paper, we assume that $|q| < 1$ and use the standard product notation

$$(a; q)_0 := 1, \quad (a; q)_n := \prod_{j=0}^{n-1} (1 - aq^j) \quad \text{and} \quad (a; q)_\infty := \prod_{n=0}^{\infty} (1 - aq^n).$$