South East Asian J. of Mathematics and Mathematical Sciences Vol. 16, No. 3 (2020), pp. 105-112

ISSN (Online): 2582-0850

ISSN (Print): 0972-7752

## ON CERTAIN IDENTITIES FOR ROGERS-RAMANUJAN CONTINUED FRACTION

## Vinay G. and Shwetha H. T.\*

Department of Mathematics, Yuvaraja's College, University of Mysore, Mysuru - 570005, INDIA

E-mail : vinaytalakad@gmail.com

\*Department of Mathematics, Vidyavardhaka College of Engineering, Mysuru - 570002, INDIA E-mail : shwethaht@gmail.com

(Received: Aug. 15, 2020 Accepted: Oct. 09, 2020 Published: Dec. 30, 2020)

**Abstract:** In this paper, we establish relation between Rogers-Ramanujan continued fraction R(q),  $R(q^2)$ ,  $R(q^n)$  and  $R(q^{2n})$  for n = 7, 13 and 17.

**Keywords and Phrases:** Modular equations, Theta functions, Continued fraction, Eta functions and Rogers-Ramanujan identities.

**2010 Mathematics Subject Classification:** 11F20, 33C75, 11A55, 11R42, 11P84.

## 1. Introduction

Throughout the paper, we let |q| < 1 and for positive integer n, we use the standard notation

$$(a;q)_0 = 1,$$

$$(a;q)_n = \prod_{j=0}^{n-1} (1 - aq^j),$$