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A MONTHLY MULTIDISCIPLINARY PEER REVIEWED RESEARCH JOURNAL



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PUBLISHED BY KUNWAR EDUCATIONAL SOCIETY FOR RESEARCH & DEVELOPMENT



# FUNDAMENTAL RESEARCH

A MONTHLY MULTIDISCIPLINARY PEER REVIEWED & REFEREED RESEARCH JOURNAL

OFR. VOLUME:10, ISSUE: 02 FEBRUARY: 2020, ISSN: 2454-5775

## NEW MULTIVARIABLE ANALOGUE OF PANDA'S POLYNOMIALS

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REVI REVI	EWED: 07:01.2020	ACCEPTED: 05.02.2020
WORDS: 0739. REFERENCES: 08	FIGURES: 00	TABLES: 00
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ABSTRACT In the present paper, motivated by earlier work of the auther (45 (2015), 95-102) On multivariable analogue of a class of polynomials of Chandel and Chandel and On New class of polynomials, *Glasgow Math. J.* (18 (1977), 105-108) by R. Panda and A multivariable analogue of Panda's polynomials, *Indian. J. Pure Appl. Math.*, (21 (12) (1990), 1101-1106 by R.C.S. Chandel and S. Sahgat; we introduce new multivariable analogue of Panda's polynomials and interesting special cases are also discussed in details. 2010 Mathematical Subject Classification : 33C50 Keywords, Multivariable Analogue Panda's Otherapide Chandel Otherapide Chandel State Chandel C

Keywords, Multivariable Analogue, Panda's polynomials, Chandel and Chandel polynomials, Chandel and Sahgal Multivariable analogue.

## 1. Introduction.

Panda [7] introduced a new class of polynomials defined by generating function :

(1.1) 
$$(1-t)^{-c} G\left[\frac{xt^{\prime}}{(1-t)^{r}}\right] = \sum_{n=0}^{\infty} g_{n}^{c}(x,r,s) t^{n},$$

where

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(1.2) 
$$G(z) = \sum_{n=0}^{\infty} \gamma_n z^n, (\gamma_0 \neq 0),$$

c is arbitrary parameter, r is any integer positive or negative and s=1,2,3, ....

Further for 
$$\gamma_n = \frac{1}{n!}$$
, Sinha [8] studied the special case of above polynomials defined by  
(1.3)  $(1-t)^{-r} \exp\left\{\frac{xt^r}{(1-t)^r}\right\} = \sum_{n=0}^{\infty} E_n^c(x,r,s) t^n$ 

in different notation (see Chandel's Corrigendum [2]).

Recently, Chandel and Sahgal [3] introduced a multivariable analogue of Panda's polynomials [7], defined by

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where b, c1,..., cm; are any parameters; r1,..., rm; are any integers positive or negative, while s1,..., sm are any positive integers. They also discussed generalization of (1.4) as

$$1.5) (1-t_1)^{-c_1} \dots (1-t_m)^{-c_m} G\left[\frac{x_1 t_1^{t_1}}{(1-t_1)^{t_1}} + \dots + \frac{x_m t_m^{t_m}}{(1-t_m)^{t_m}}\right] \\ = \sum_{n_1,\dots,n_m=0}^{\infty} G_{n_1,\dots,n_m}^{(c_1,\dots,c_m;r_1,\dots,r_m;s_1,\dots,s_m)} (x_1,\dots,x_m) t_1^{n_1} \dots t_m^{n_m}$$

where  $c_1,...,c_m$ ; are any parameters independent of  $x_1,...,x_m$ ;  $r_1,...,r_m$ ; are any integers positive or negative while  $s_1,...,s_m$  are positive integers and  $x_1,...,x_m$  are any variables real or complex and G(z) is given by (1.2)



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