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ON CERTAIN CAYLEY-ORR IDENTITIES OF SPECIAL TYPE

Nidhi Sahni and Sunil Singh*

Department of Mathematics,
Sharda University, Greater Noida-201308, INDIA

E-mail : nidhi.sahni@sharda.ac.in

*Department of Mathematics,
The Institute of Science, 15, Madam cama Road,
Fort, Mumbai-400032, Maharashtra, INDIA

E-mail : sunilsingh@iscm.ac.in

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Abstract: In this paper, making use of certain known transformations of poly-basic hypergeometric series we establish some Cayley-Orr type of identities which are of number theoretic importance.

Keywords and Phrases: Cayley- Orr identities, poly- basic, transformations, generalized hypergeometric functions, q-series.

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1. Notations and Definitions

We shall follow the following notations and definitions in this paper.
We define a generalized hypergeometric function, ${}_rF_s$ as,

$$ {}_rF_s\left[\begin{array}{c}(a_r);z\\(b_s)\end{array}\right]=\sum_{n=0}^{\infty}\frac{(a_1)_n(a_2)_n...(a_r)_nz^n}{(1)_n(b_1)_n(b_2)_n...(b_s)_n} \tag{1.1}$$

where the symbol

$$(\alpha)_n=\begin{cases}\alpha(\alpha+1)(\alpha+2)...(\alpha+n-1); & n>0\\ 1; & n=0\end{cases}$$