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Susil Kumar Jena* (susil_kumar@yahoo.co.uk), Professor, Dept. of Electronics and Telecom. Engineering, KIIT University, Bhubaneswar, Orissa 751024, India. *Method of Infinite Ascent applied on $2^p.A^6 + B^3 = C^2$.*

In the VII-th Joint Meeting of the American Mathematical Society and the Sociedad Matematica Mexicana held in Zacatecas, Mexico, during May 23-26, 2007, in a talk titled: Method of Infinite Ascent applied on $A^6 + n.B^3 = C^2$, I introduced a method of regenerating infinite number of co-prime integral solutions for (A, B, C) for a class of integers n . This time, I wish to apply the Method of Infinite Ascent to the title equation to prove that for any positive integer p , when $p = 6k - 5$ or $p = 6k - 3$ with k being a positive integer, the equation, $2^p.A^6 + B^3 = C^2$ has infinitely many co-prime integral solutions for (A, B, C) . The method, being constructive, will help us to generate any number of co-prime integral solutions of the same. I will provide my latest findings on this interesting Diophantine equation for the other uncovered values of p only at the meeting. (Received October 23, 2008)