**Solution of Fourth Order Ordinary Differential Equation(ODE)**

**using Runge-Kutta 4th Order formula**

y ‘’’’(t) = f(t,y(t) ,y ’(t) ,y ‘’(t), y ‘’’(t)) = f (t, y, p, q, r)

or y ‘’’’ = f(t,y, y ’,y ‘’, y ‘’’) = f (t, y, p, q, r)

where p=y ’ ; q=y ‘’ ; r=y ‘’’

**Runge-Kutta 4th Order Formula**

+2 ;

+2

+2 ;

+2 ;

*where*

*f1-f4; g1-g4; h1-h4; i1-i4 is slopes(4 sets of slopes)*

; ; ;

;

; ;

;

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*for k = 0,1,2,3,…..,M-1 ;*

*===*

*;*

*h is step size; interval [a,b], subinterval M ;*

*Initial value y(t0) = ; y ’(t0) = ;*