2. $h=0.2$, $r=0.5$, $\tau=rh^2=0.02$;

$x_i=ih$, $0\le i\le 5$; $t_k=k\tau$, $0\le k\le 2$;

六点隐格式

$$\begin{bmatrix} 2 & -0.5 & 0 & 0 \\ -0.5 & 2 & -0.5 & 0 \\ 0 & -0.5 & 2 & -0.5 \\ 0 & 0 & -0.5 & 2 \end{bmatrix} \begin{bmatrix} u_1^k \\ u_2^k \\ u_3^k \\ u_4^k \end{bmatrix} = \begin{bmatrix} u_1^{k-1}+0.5t_k \\ u_2^{k-1} \\ u_3^{k-1} \\ u_4^{k-1} \end{bmatrix}, \quad k\ge 1;$$

$u_i^0=x_i$, $0\le i\le 5$;

$u_0^k=t_k$, $u_5^k=0$, $k\ge 1$.

计算得

$u_1^1=0.2005742$, $u_2^1=0.3822966$, $u_3^1=0.5286124$, $u_4^1=0.5321531$;

$u_1^2=0.1984039$, $u_2^2=0.3524672$, $u_3^2=0.4468716$, $u_4^2=0.3777945$.