$$u_1(\mathbf{x}_{ij}) \approx \frac{u_{i+1,j} - u_{i-1,j}}{2h}$$

$$u_2(\mathbf{x}_{ij}) \approx \frac{u_{i,j+1} - u_{i,j-1}}{2h}$$

$$u_{11}(\mathbf{x}_{ij}) \approx \frac{u_{i+1,j} + u_{i-1,j} - 2u_{i,j}}{h^2}$$

$$u_{12}(\mathbf{x}_{ij}) \approx \frac{u_{i+1,j+1} + u_{i-1,j-1} - u_{i+1,j} - u_{i-1,j}}{4h^2}$$

$$u_{22}(\mathbf{x}_{ij}) \approx \frac{u_{i,j+1} + u_{i,j-1} - 2u_{i,j}}{h^2}$$

$$u_{111}(\mathbf{x}_{ij}) \approx \frac{u_{i+2,j} - 2u_{i+1,j} - 2u_{i-1,j} + u_{i-2,j}}{2h^2}$$

$$u_{112}(\mathbf{x}_{ij}) \approx \frac{u_{i+1,j+1} + u_{i-1,j+1} - 2u_{i,j+1} - (u_{i+1,j-1} + u_{i-1,j-1} - 2u_{i,j-1})}{2h^2}$$

$$u_{122}(\mathbf{x}_{ij}) \approx \frac{u_{i+1,j+1} + u_{i+1,j-1} - 2u_{i+1,j} - (u_{i-1,j+1} + u_{i-1,j-1} - 2u_{i-1,j})}{2h^2}$$

$$u_{222}(\mathbf{x}_{ij}) \approx \frac{u_{i,j+2} - 2u_{i,j+1} - 2u_{i,j-1} + u_{i,j-2}}{2h^2}$$