

q1. (5 pts) wrt to IVPs and BVPs, briefly explain the shooting method.

q2. (5 pts) briefly distinguish between finite difference method (FDM) and collocation.

q3. (5 pts) what was the collocation basis used in the first lecture example? why was that basis chosen?

q4. (5 pts) briefly explain finite element method (FEM).

q5. (5 pts) why is the heat equation parabolic? ($u_t = Du_{xx}$)

q6. (5 pts extra credit) what is a diffusion-reaction system? give an example.