The Lattice Design Study of a Proposed Beijing Therapy Proton Synchrotron, X. LUO, Z. GUO, Q. HAN, S. WANG, BEPC - A therapy proton synchrotron facility has been proposed in Beijing recently. The injection energy is 3.5 MeV and the extraction beam energy can be adjusted from 70 MeV to 200 MeV continuously. The separated function lattice with six cells is studied in details. The edge focusing effect of the bending magnet is used in the lattice so that some of quadrupoles can be omitted. In order to reduce the magnet gap, the coupling is adjusted by using one skew quadrupole while the beam energy is ramping. For simplification, the injection patterns have been optimized. Only one set of kicker magnet is used for both injection and extraction. The nonlinear effects of the magnets have been corrected by sextupoles and octupole to reach a large dynamic aperture.