Advanced Topic in Modern Mathematical Sciences
Lecturer: Hiroshi Matsuzawa
Self Check Sheet No.02

Student No. _____ Name_____

1. Let $U \subset \mathbb{R}^N$ and $T > 0$. Write the definition of the parabolic boundary of $(0, T) \times U$.

2. What condition on the solutions guarantee that the uniqueness of the initial value problem of the heat equation when $U = \mathbb{R}^N$?

3. Weite the statement of the weak maximum principle for the parabolic equations.

4. Write the statement of the strong maximum principle for the parabolic equations(please choose one from the lecture note).

5. Prove Theorem 4.2 for the case where $f = f(x, u)$ is bounded and continuous and f_u is continuous.