Assignment 2

For the notations and additional explanations see my lectures (hep-th/0605148).

Problem 1

Please show that the subbundle L of $TM + T^*M$ defined as follows

$$L = \{(v + i_v\omega), \quad v \in TM\}$$

is a Dirac structure if and only if

$$\omega \in \Omega^2(M) \ , \qquad d\omega = 0 \ .$$

Problem 2

Please show that

$$\mathcal{J} = \begin{pmatrix} J & 0 \\ 0 & -J^t \end{pmatrix}$$

is a generalized complex structure if and only if J is a complex structure.