Course 2E1 2006-07 (SF Engineers & MSISS & MEMS)

S h e e t 20

Due: at the end of the tutorial

Exercise 1

Use the Gram-Schmidt process to transform the given basis $\{\mathbf{u}_1, \ldots, \mathbf{u}_n\}$ into orthogonal one:

(i) $\mathbf{u}_1 = (3, 4)$, $\mathbf{u}_2 = (3, -4)$;

(ii) $\mathbf{u}_1 = (1, 1, 0)$, $\mathbf{u}_2 = (1, 0, 1)$, $\mathbf{u}_3 = (1, 0, -2)$;

(iii) $\mathbf{u}_1 = (1, 1, 0, 0)$, $\mathbf{u}_2 = (1, 0, 1, 0)$, $\mathbf{u}_3 = (1, 0, -2, 0)$, $\mathbf{u}_4 = (1, 0, 0, 1)$;