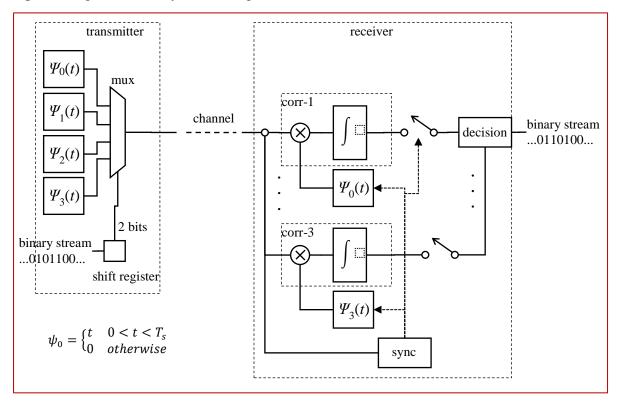The following quarternary (M=4) baseband communication system and one of the waveforms representing one of the symbols are given.

$$\psi_0 = \begin{cases} t & 0 < t < T_s \\ 0 & otherwise \end{cases}$$

a) Find remaining waveforms that are either orthogonal or make up an antipodal pair with the given. That is, you are expected to find ψ_1, ψ_2 and ψ_3. All waveforms should be either orthogonal to each other or pairwise antipodal and orthogonal to other pair(s). Hint: There is no single/unique solution. Everyone can find different waveforms.

b) Determine correlator outputs at the decision instants for all waveforms.

Turn in:

Answers sheets (either printed or clearly written on A4) must be returned to my office (B305). Slide them in under my office door by 15.4.2022 Friday 12:00. No electronic forms will be accepted. No infringed / plagiarised answers will be evaluated. No late turn-ins will be accepted. Unreadeable sheets will not be evaluated.