Written test of July 1st 2020.   .

note: This test is valid only for registered students. Test delivery implies that previous results (if any) of the same student are canceled.

Family and first names (in all CAPITALS): _____   _____

signature: _____

Roma3 registration number: _____ or ID card number: _____

born on (day/month/year): _____ / _____ / _____

In the academic year 2019/2020 registered for the ___ year of the MS course in

_____

e-mail (write legibly): _____ @ _____

Exercises:

1. Let x(n) be the sequence obtained from sampling with the period T of the analog signal s(t), i.e. x(n)=s(nT). Perform an **effective** digital processor to obtain at the output the sequence: $y(n) = s(1.5\, n\, T - 0.2\, T)$.

2. Perform a digital linear FIR filter made of 3 coefficients to amplify (by the factor 2) the frequency components of input sequence for $|\omega| < \pi/4$, while the higher frequencies ($|\omega| > \pi/4$) of input signal are reduced by the factor 2.