Written test of Jan. 9th 2020.   .

note: This test is valid only for registered students. Test delivery implies that previous results (if any) 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 by sampling, with the period T, the analog signal s(t), i.e. x(n)=s(nT). Perform an **effective** digital processor to obtain the output sequence defined as follows: y(n) = s(1.6 n T – 0.3 T) .

2. Perform a linear FIR filter made of 5 coefficients to neglect both low and high frequency contents for $|\omega| < \pi/4$ and $|\omega| > \pi/3$, respectively (being ω the radian normalized frequency).