UNIVERSITA' DEGLI STUDI ROMA TRE
CdS in ***Biomedical Engineering***

class of
Signal Processing for Biomedical Engineering

Written test of January 10th 2019. .

note: This test is valid only for registered students. Test delivery implies that previous results are canceled.

Family and first name (printed): _____ _____

signature: _____

Roma3 registration number: _____ or ID card number: _____

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

In the academic year 2018/2019 registered for the ___ year of the master course in

_____

e-mail (write in clear letters): _____ @ _____

Exercises:

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

2) Perform a digital linear FIR filter, made of 5 coefficients, to amplify (by the factor 10) the frequency components of the input sequence for $|\omega| < \pi/2$, while the higher frequencies ($|\omega| > \pi/2$) of input signal must be reduced by the factor 10.