Department of Materials Science and Engineering
Norwegian University of Science and Technology

TMT4320 Nanomaterials, fall 2015

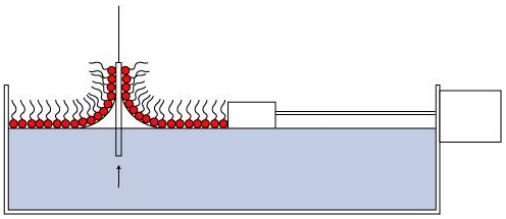
EXERCISE 11

Guidance: Thursday 11th November, 18:15-20:00, H3
Due date: Friday 13th November, 14:00, boxes outside R7 or on It's learning

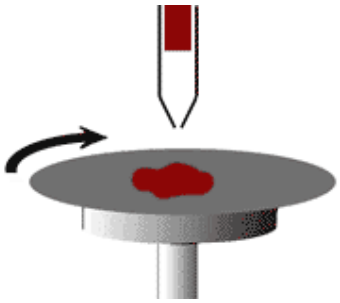
PROBLEM 1

The figures below illustrate various methods to produce thin films on a substrate. For each figure; name the method, describe the method briefly, and state if the method is a wet-chemical deposition method, chemical vapor deposition method or physical vapor deposition method.

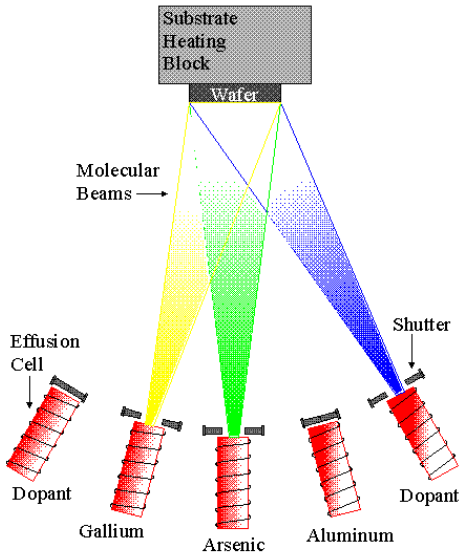
a)



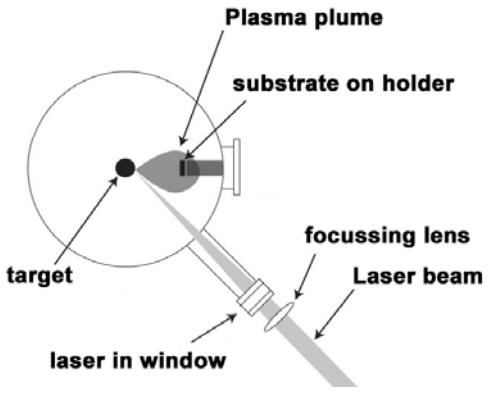
b)



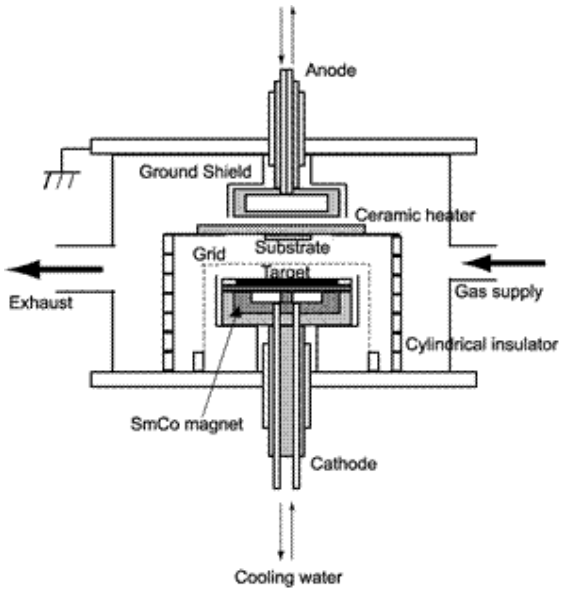
c)



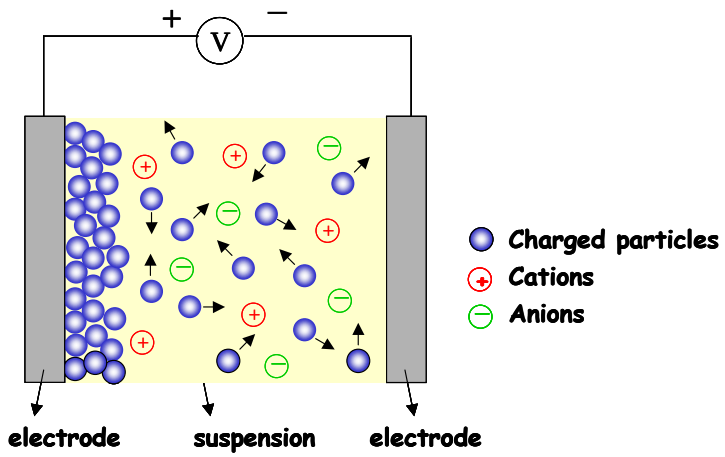
d)



e)



f)



PROBLEM 2

If you were to produce the following thin films and nanostructures, which thin film deposition/growth method would you prefer to use (is possible and best to use)? Give a short explanation of your choice.

a) An $InP_{0.85}Sb_{0.15}$/GaAs multilayer structure on an InP substrate

b) A monolayer of hexadecanethiol ($C_{16}H_{33}SH$) on a gold substrate

c) A 10 nm thick $PbTiO_3$ film on a $SrTiO_3$ substrate