MEC-E7001 Examination 11.4.2019

Write full sentences using clear and readable fonts

1. A factory manufactures 1000 products a year starting from raw materials. Average throughput time from start to completion is 5 weeks and manufacturing cost is about 100 000 euros/product.
   a) What is the value of average work in process?
   b) What is the average number of products found at the factory (incomplete or complete) at any time?
2. Compare linear regression modeling and neural network modeling. What Is the purpose of such modeling? What are the main characteristics of each, how do they differ and give examples of typical applications for both of them.
3. Describe production control using priority rules. Describe typical rules. Why are they used? What are the advantages and disadvantages of such a system compared to real optimization when making production scheduling decisions?
4. How can
   a) maximum tardiness,
   b) number of tardy products,
   c) total tardiness
   be minimized for a single machine? You do not need to specify models in detail, just describe principle. Describe the assumptions you make concerning your system.