Problems – DEA

Problem 1 *Car services prepare cars for emission measurement and also ensure it. Compare the services if you have the following data:*

branch	*A*	*B*	*C*	*D*	*E*	*F*	*G*
No. of technics	*10*	*8*	*4*	*2*	*1*	*5*	*7*
No. of cars	*25*	*22*	*8*	*3*	*2*	*9*	*10*

Choose one of the ineffective service begin itemize item give its efficiency, item suggest the number of serviced cars to became effective with the same number of technics, item

For the same unit decide how many technics should be able to service the same number of cars to be effective.

Problem 2 *Let us suppose that the manager decides to compare car services from the point of view of two inputs and one output as is given in the following table.*

branch	*A*	*B*	*C*	*D*	*E*	*F*	*G*
No. of technics	*10*	*3*	*3*	*5*	*6*	*5*	*9*
No. of PCs	*6*	*4*	*16*	*14*	*15*	*2*	*5*
No. of cars	*20*	*10*	*30*	*20*	*30*	*10*	*20*

Apply a graphical solution to identify effective units and for all ineffective their peer units.

Problem 3 *In the case when the manager decides to compare one input and two outputs, we give the following table:*

branch	*A*	*B*	*C*	*D*	*E*	*F*	*G*
No. of technics	*1*	*1*	*2*	*2*	*3*	*1*	*1*
No. of cars	*10*	*8*	*18*	*22*	*21*	*9*	*3*
sales (CzK 0000)	*2*	*2*	*6*	*5*	*6*	*2.7*	*1*

Apply a graphical solution to identify effective units and for all ineffective their peer units.

Problem 4 *Solve the previous problem by LO models and compare the results obtained in this way with the results obtained in graphical way.*

Problem 5 *The bank manager needs to compare their branches in different towns. He decides to compare them according to labour costs, operating costs as inputs and according to number of personal current accounts, number of corporate current account and monthly returns. Data are given in the table.*

branch	*A*	*B*	*C*	*D*	*E*
Inputs					
Labour costs	*125*	*100*	*130*	*114*	*120*
Operating costs	*5*	*4*	*5*	*2*	*6*
Outputs					
No. of personal acc.	*566*	*680*	*736*	*469*	*789*
No. of corporate acc.	*693*	*548*	*355*	*422*	*270*
returns (CzK 0000)	*449*	*362*	*446*	*403*	*385*

Construct both - input and output-oriented models, solve both of them, identify effective units and for ineffective ones their peer units and plan for improvement.