

Problem solving (calculation)

Exercise 2

Determine the average demand per day, the buffer stock in tons, the Economic Order Quantity and the First reordering day (R₁) if the following data is given, and you can use the saw-tooth model! Show the inventory level over time (fill the consumption of the first reordered stock starts to be consumed) in the empty diagram in the answer sheet!
 Initial quantity on stock: 1800 tons.
 Buffer stock should be enough for 8 days.
 The lead time is 10 days.
 The planning period is 100 days long, and the total demand during this period is 8000 tons.
 The ordering cost is 100 euros per order. The cost of stock holding is 10 euros per one ton.

Exercise 3

Plot the AOA network diagram, and determine the critical path with its activities, the length the critical path and the duration of the whole project if the following data is given!

activity	Duration (minutes)	Predecessor
a	60	
b	60	a
c	180	b
d	30	b
e	30	c
f	90	d
g	120	e, f

Exercise 4

14 customers were asked about a product's quality features. Than on the basis of nine consistent decision makers' answers, we created the summarized preference matrix (see below). Determine how much the answers agree! Calculate the Kendall's coefficient of concordance!

	11	12	13	14	15	16	17	18
11		5	2	5	5	2	6	1
12	4		1	9	1	3	2	0
13	7	8		8	8	2	6	0
14	4	0	1		1	1	6	0
15	4	8	1	8		0	5	1
16	7	6	7	8	9		8	3
17	3	7	3	3	4	1		0
18	8	9	9	9	8	6	9	

Answer Sheet

Total Points: 70 (20 multiple choice + 50 calculation)

1. Multiple Choice (maximum points: 20)

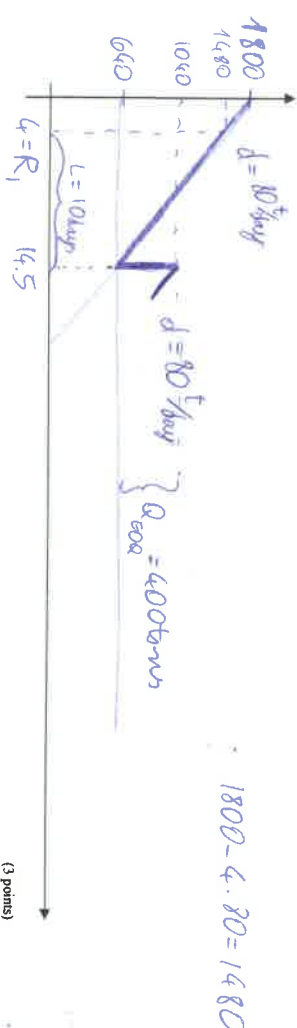
1	A	5	D	9	C	13	A	17	C
2	D	6	C	10	B	14	B	18	A
3	C	7	A	11	A	15	C	19	D
4	A	8	B	12	A	16	D	20	C

Points: / 20

2. Problem solving 1 (maximum points: 15)

d = 80 t/day (2 pts) b = 640 ... tons (2 pts) EOQ = 400 ... tons (4 pts) R = 414 ... day (4 pts)

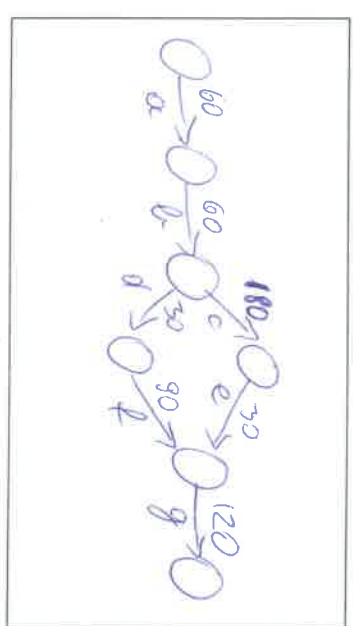
Points: / 15



(3 points)

3. Problem solving 2 (maximum points: 25)

Points: / 15



(5 points)

The critical path: a-b-c-e-g = 450 minutes (5 + 2 points)

The project duration: 450 (3 points)

4. Problem solving 3 (maximum points: 20)

R_{mean} = 31,5 (6 points)

Δ = 1666 (6 points)

Δ_{max} = 3402 (4 points)

K = 48,97 % (4 points)

Points: / 20