Management of Value Creating Processes	University of Debrecen Faculty of Economics and Business Administration Department of Management and Marketing	**B**
Exam paper (.....dd/.....mm/.....yy)		

Name: ..... BA in MBA / Erasmus

Do not forget to fill the Answer Sheet on the last page! Time limit: 55 minutes.

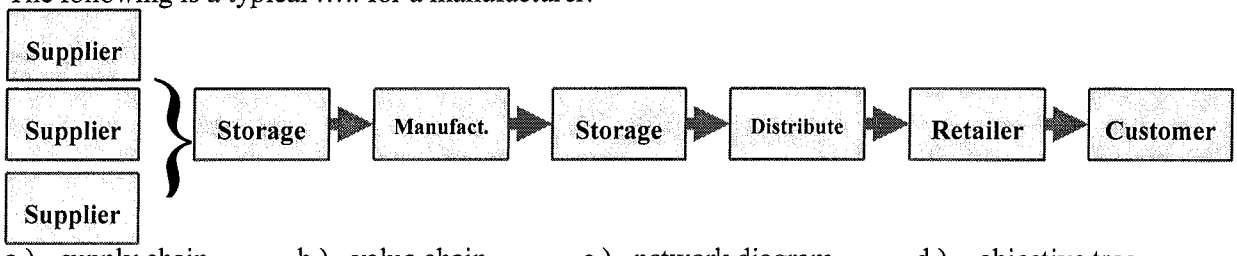
Exercise 1: Multiple Choice (only one answer is correct)

1.	**Let z be 1,65 (95%), and the standard deviation of demand is 600 units during the lead time. What is the optimal level of buffer-stock?** a.) 330 units b.) 990 units c.) 660 units d.) 364 units
2.	**Why to account for seasonal fluctuations in inventory management?** a.) The production of many goods or services has significantly different opportunities and costs in different time-intervals in a year b.) Seasonal fluctuations are important only for those areas, where there are at least two seasons in a year c.) There is an unpredictable variability in the need for some goods d.) The need for some products or services are significantly but unpredictably needed more in certain times of a year
3.	**The time interval from setting up order to the start of using up the ordered stock is called:** a.) Setting up time c.) Lead time b.) Procurement time d.) Ordering time
4.	**Which one of the four main types of inventory costs is NOT important in the determination of the order quantity?** a.) Carrying cost b.) Item cost c.) Ordering cost d.) Stockout cost
5.	**In an EOQ model, the daily demand is:** a) constant c.) highly flexible b) changing according to the ordering costs d.) changing according to the holding costs
6.	**What is not a key issue of the supply chain management?** a.) Managing suppliers. b.) Managing customer relationships. c.) Managing risks. d.) Aggregate planning.
7.	**..... is a part of a supply chain management involved with the forward and reverse flow of goods, services, cash and information.** a) transportation c.) value chain b) logistics d.) project management
8.	**What is the advantage of "cross-docking"?** a.) Reduces ordering costs b.) Improves quality c.) Reduces holding costs and lead times. d.) Increase product variety
9.	**Routine activities are...** a.) projects with great possibility of success. b.) activities that are known and practiced very frequently. c.) task that do not need qualification. d.) are activities performed in the same activity chain (route).
10.	**Which word fits the gap in the following text? The ... is a tool used to define and group a project's discrete work elements (or tasks) in a way that helps organize and define the total work scope of the project.** a.) Material requirement plan b.) Logical framework matrix c.) Work breakdown structure d.) Problem-tree

11. **If utilization is 0,25 and actual output is 10, what is designed capacity?**

a.) 2,5 b.) 0,25 c.) 40 d.) 10

12. The following is a typical ..... for a manufacturer:



a.) supply chain b.) value chain c.) network diagram d.) objective tree

13. **In the critical path (in project management) there is no ..... time.**

a.) flank c.) critical

b.) slack d.) probabilistic

14. **Among the principles below, which has the following element? "Remove of items which are unnecessary."**

a) Poka-Yoke
b) Kaizen
c) 5S
d) TPM

15. **..... is a fixed value in a mathematical model.**

a.) Decision variable c.) Parameter

b.) Objective function d.) Objective tree

16. **What is not true about manufacturing cells?**

a) The frequently used equipment is in the center while other equipments are around it according to the frequency of using.
b) Whit the help of this time and distance of transportation can be reduced.
c) In MC systems machines are grouped together according to the families of parts produced
d) It can reduce WIP inventory.

17. Pair the following statement with one of Garvin's approaches on quality below: "Quality is defined in costs and prices. How much is the benefit of the good or service outweigh the cost?"

a) Transcendent approach
b) Product-Based approach
c) Manufacturing approach
d) Value based approach

18. **Dummy activites...**

a.) are used only in AOA diagrams c.) are used only in AON diagrams

b.) are usually has a duration grater than zero d.) are activites that do not need qualified labor

19. **Which statement is not true about quality control?**

a) It regards to processes
b) Its method is PDCA cycle
c) It prevents mistakes from arising again
d) The system must be checked by audit.

20. **Determine takt time, if there is 2 shifts, in each shift a 30 minutes lunch break and three 10 minutes break. Daily demand is 220 pieces.**

a) 4 minutes
b) 8 minutes
c) 7,64 minutes
d) 3,82 minutes

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* (R_1) if the following data is given, and you can use the saw-tooth model! Plot the *inventory level over time* (till the consumption of the first reordered stock starts to be consumed) in the empty diagram in the answer sheet!

Initial quantity on stock: 3000 tons.
Buffer stock should be enough for 12 days.
The lead time is 20 days.
The planning period is 250 days long, and the total demand during this period is 15000 tons.
The ordering cost is 80 euros per order. The cost of stock holding is 30 euros per one ton.

Exercise 3

Plot the AOA (activity on arrow) 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 (days)	Predecessor
a	4	–
b	4	a
c	10	a
d	5	b
e	3	b
f	6	d, e
g	7	f, c
h	1	g

Exercise 4

14 customers were asked about a product's quality features. Than on the basis of twelve consistent decision makers' answers, we created the summarized preference matrix (see below). ***Determine the importance of each dimension (item) on a 1-10 scale (with the help of linear transformation).***

	I1	I2	I3	I4	I5	I6	I7
I1		5	4	10	9	7	10
I2	7		8	12	8	10	8
I3	8	4		8	10	6	8
I4	2	0	4		1	1	5
I5	3	4	2	11		0	3
I6	5	2	6	11	12		11
I7	2	4	4	7	9	1	

Answer Sheet

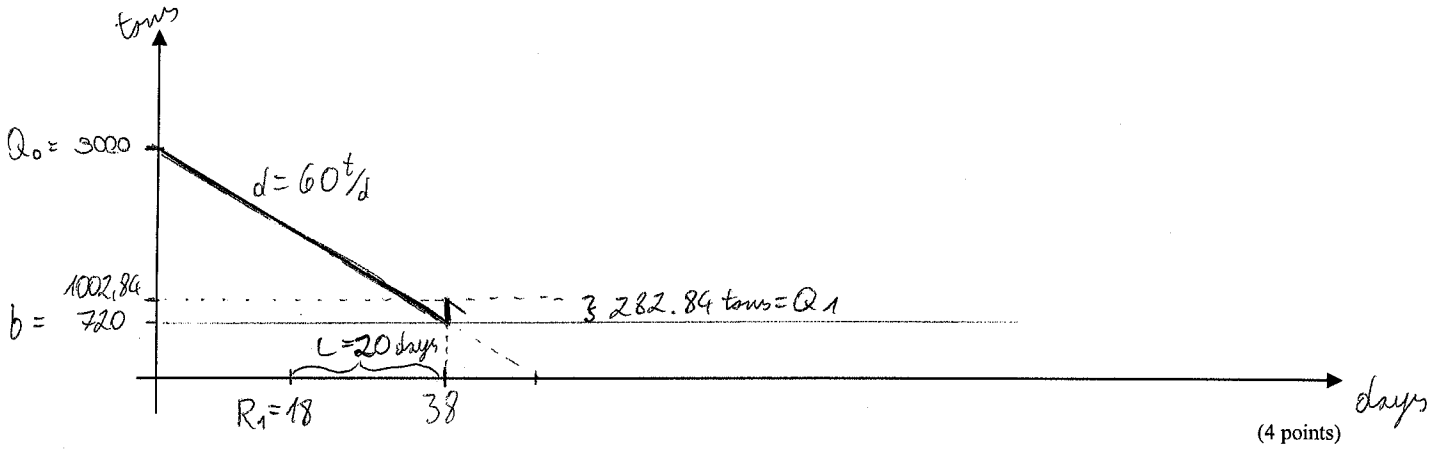
Total Points: 70 (20 multiple choice + 50 calculation)

1. Multiple Choice (maximum points: 20) Points: ..... / 20

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

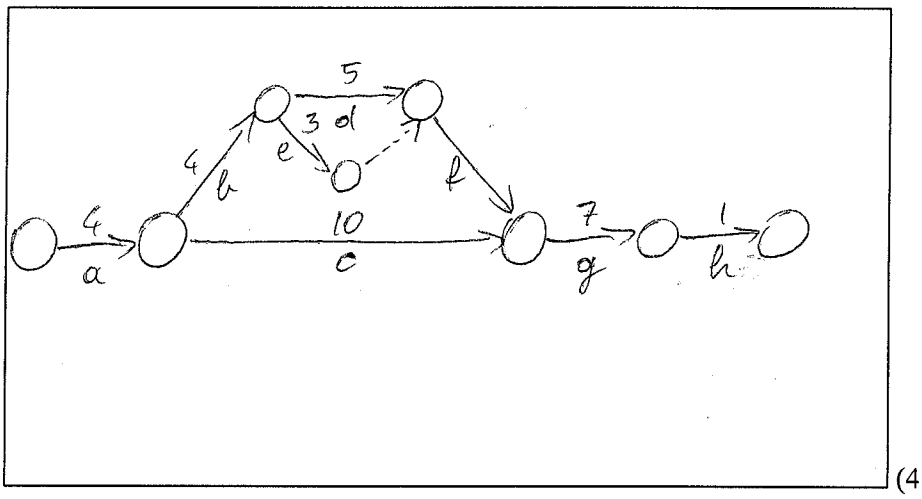
2. Problem solving 1 (maximum points: 15) Points: ...../ 15

d= 60 t/day (2 pts) b = 720 tons (2 pts) EOQ= 282.84 tons (4 pts) R_1= 18 day (4 pts)



(4 points)

3. Problem solving 2 (maximum points: 14) Points: ...../ 15



(4 points)

The critical path: a b d f g h = 27 days (5 + 2 points)

The project duration: 27 days (2 points)

4. Problem solving 3 Fill the matrix with results: (maximum points: 20) Points: ...../ 20

	I_1	I_2	I_3	I_4	I_5	I_6	I_7
P_{ai} (7points)	0,607	0,702	0,595	0,226	0,345	0,631	0.393
% (6 points)	80,04%	100%	77,52%	0%	25.0%	85.08%	35.08%
Grade (7 points)	9	10	8	1	3	9	4