FINAL EXAM

COURSE TITLE: **INTRODUCTION TO MANAGEMENT**
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INVIGILATORS

Invigilator(s) name(s)	Signature(s)

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I have read the text on academic integrity and I pledge not to have committed or attempted to commit academic fraud in this examination.

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Note: an examination copy or booklet without that signed statement will not be graded and will receive a final exam grade of zero.

INSTRUCTIONS

1. Books and notes **Not allowed.**
2. Calculators are **Allowed.**
3. Cell phones are **Not allowed.**

LEGO

Lego is a brand associated with the manufacturing of construction toys of plastic. It is a subsidiary of its parent company Lego group. The company was founded by its Danish founder Ole Kirk Christiansen (1891–1958), a carpenter from Billund, Denmark, who began making wooden toys in 1932 and Lego toys were launched in the market in 1949. Lego has been ranked at first position in February 2015 as world's most powerful brand, and in July of the same year, it was able to produce nearly 600 billion units of Lego parts. The company's flagship product, Lego, consists of colorful interlocking plastic bricks accompanying an array of gears, figurines called minifigures, and various other parts. Lego pieces can be assembled and connected in many ways, to construct objects; vehicles, buildings, and working robots. Anything constructed can then be taken apart again, and the pieces used to make other objects.

Thousands of Lego sets have been launched by Lego group with various themes like robots, space, Wild West, undersea exploration, dinosaurs, castle, Vikings, trains and pirates. It has also licensed themes from video games, films and cartoons like Lego Island, Lego Creator, Lego Racers, Lego Minecraft, Lego Star Wars, Lego Racers 2, Lego Indiana Jones, Lego marvel Superheroes and Lego Batman. LEGO wear Clothes are also available in the market since the year 1993 and are manufactured with a license provided by Lego Group to Kabooki Company.

Lego group has its headquarters base at Billund in Denmark. Its main offices are in Shanghai in China, London in the United Kingdom, Enfield in the United States and at Singapore. Manufacturing facilities are located in several places in the world. Molding is conducted at Billund in Denmark, Jiaxing in China, Monterrey in Mexico, and Nyiregyhaza in Hungary. For packaging and brick decorations it has plants in Kladno, Mexico, Hungary, and Denmark.

Lego launched its official website in 1996. This is an online store that offers extra services like product catalogue, related information and instruction booklets. Lego has an extensive distribution network that includes distribution operations via one hundred and twenty-five retail outlets. Of these eight are in the United States, eleven are situated in Germany, thirteen are in the United Kingdom, two are located in Austria, six in France and one each in Denmark and Sweden. In India first Lego outlet was opened in the year 2014 at Chennai in Tamil Nadu by Funskool under a license agreement. Lego operates 132 so-called "Lego Store" retail shops. There are stores at the Downtown Disney shopping complexes at Disneyland and Walt Disney World Resorts as well as in Mall of America in Bloomington, Minnesota.

Lego has adopted a mid-premium pricing policy for its high-end products so that it seems reasonable and affordable to its customers. It has maintained value-based pricing strategy so that it can create further markets by increasing its customer base.

Lego has undertaken various activities to gain brand recognition like marketing and advertising via television, online mediums, print magazines and in-store efforts. Lego has also been an active participant in several events to gain brand exposure. It released Lego Minifigures series for Summer Olympics 2012 and mascots Tom and Vinicius for Summer Paralympics 2016 and Summer Olympics 2016 respectively. As part of its promotional activity, it has launched My Lego Network for social networking and includes badges, ranks, blueprints and items that can

be earned after undertaking and completing certain trophies and tasks. Lego celebrates its every single store opening with weekend-long event celebrations.

Lego changed marketing so it would be seen as both a toy and an educational tool. This strategy has been effective. Buying Lego's toys makes millennial parents feel like they're investing in their child's development.

The Lego Group's motto is *det bedste er ikke for godt* which means roughly "only the best is the best" (more literally "the best is never too good") This motto, which is still used today, was created by Christiansen to encourage his employees never to skimp on quality, a value he believed in strongly.

Lego's popularity is demonstrated by its wide representation and usage in many forms of cultural works, including books, films and art work. It has even been used in the classroom as a teaching tool.

Lego pieces of all varieties constitute a universal system. Despite variation in the design and the purposes of individual pieces over the years, each piece remains compatible in some way with existing pieces. Lego bricks from 1958 still interlock with those made in the current time, and Lego sets for young children are compatible with those made for teenagers. Six pieces of 2x4 bricks can be combined in 915,103,765 ways.

Each Lego piece must be manufactured to an exacting degree of precision. When two pieces are engaged, they must fit firmly, yet be easily disassembled. The machines that manufacture Lego bricks have tolerances as small as 10 micrometers.

Primary concept and development work takes place at the Billund headquarters, where the company employs approximately 120 designers. The company also has smaller design offices in the UK, Spain, Germany, and Japan which are tasked with developing products aimed specifically at these markets. The average development period for a new product is around twelve months, split into three stages. The first stage is to identify market trends and developments, including contact by the designers directly with the market; some are stationed in toy shops close to holidays, while others interview children. The second stage is the design and development of the product based upon the results of the first stage. The design teams use 3D modeling software to generate CAD drawings from initial design sketches. The designs are then prototyped. These prototypes are presented to the entire project team for comment and for testing by parents and children during the "validation" process. Designs may then be altered in accordance with the results from the focus groups. Virtual models of completed Lego products are built concurrently with the writing of the user instructions. Completed CAD models are also used in the wider organization, for marketing and packaging.

Since 1963, Lego pieces have been manufactured from a strong, resilient plastic known as acrylonitrile butadiene styrene (ABS). Lego engineers use the NX CAD/CAM/CAE PLM software suite to model the elements. The software allows the parts to be optimized by way of mold flow and stress analysis. Prototype molds are sometimes built before the design is committed to mass production. The ABS plastic is heated to 232 °C until it reaches a dough-like consistency. It is then injected into the molds at pressures between 25 and 150 tons and takes approximately 15 seconds to cool. The molds are permitted a tolerance of up to twenty micrometers, to ensure the bricks remain connected. Human inspectors check the output of the molds, to eliminate significant variations in color or thickness. According to the Lego Group, about eighteen bricks out of every million fail to meet the standard required. Lego factories recycle all but about 1 percent of their plastic waste from

the manufacturing process. If the plastic cannot be re-used in Lego bricks, it is processed and sold on to industries that can make use of it.

Manufacturing of Lego bricks occurs at several locations around the world. Molding is done in Billund; Nyíregyháza, Hungary; Monterrey, Mexico and most recently in Jiaxing, China. Brick decorations and packaging are done at plants in Denmark, Hungary, Mexico and Kladno in the Czech Republic. The Lego Group estimates that in five decades it has produced 400 billion Lego blocks. Annual production of Lego bricks averages approximately 36 billion, or about 1140 elements per second.

Furthermore, Lego is recognized for its human resource management practices that aim to ensure employees connect meaningfully with the wider purpose of the company. Since the world of work is changing rapidly, the HR manager tends to update both the nature and role of jobs – which requires a different approach to recruitment. LEGO actively looks to hire people who are creative, who like to have fun, and who are curious learners. The activity, which involves LEGO bricks, quick thinking and "having some fun" helps determine how proactively candidates think and act and how adaptable and flexible they are. As part of the hiring process, final candidates often do a presentation to a panel of LEGO employees to demonstrate subject matter expertise in the role they're applying for.

Moreover, the training seems to be a priority for this company. By doing so, the global and local trainers have been carefully selected based on professional and human skills. After that, they have undergone a week-long teaching program where they have learned to train according to some highly specific principles inspired by the American theory training within industry. They expect every employee to seek learning in their daily job and make the use of their talents. We believe it is a shared obligation for leaders and employees to create a fulfilling and stimulating environment.

Questions:

1/ Identify at least 5 strengths of LEGO and link them to the corresponding business function. Present your answer in a table with two columns: Main strengths & Functions (10 marks).

2/ Describe LEGO's marketing mix (20 marks).

3/ Demonstrate that the quality is a key factor for LEGO; Justify your answer with sentences from the text (10 marks).

4/ Describe the R&D process of LEGO and explain why this function is strategic for the company (15 marks).

5/Lego company tends to consider human resources to remain competitive. What are the features of the hiring process adopted by Logo? After describing the training program embraced by Logo, specify its usefulness for both the company and the employee (10 marks).

6/The company is considering launching a new educational toy and plans to sell it at 45 $ a unit. The marketing department estimated the total sales at 100 000 units. The cost related to this product is:
Fixed Cost = 550 000 $ and Variable cost/unit v = 35 $
Estimated market share of Lego (1st year): 40 %

6.1. Do you think that it is interesting for the company to launch this new product if the goal is to be profitable starting from the first year? Justify your answer. (5 marks)

6.2 The company is considering outsourcing this new product. The fixed cost will decrease by 80 % and the company will buy it from a Chinese provider at 37 $; The company must invest 1 $ more per unit for distribution and promotion. **Would you recommend to the Company the outsourcing of this product? (5 marks).**

7.LEGO has to buy an input and has gathered these information about 5 potential suppliers:

Providers	Price ($)	Quality (ranking)	Risk of shortage	Quality stability	Provider's flexibility
X	2.5	1st	Very high	Low	Low
Y	2.4	2nd	high	Very low	Moderate
Z	2.3	5th	Very low	Moderate	Very high
T	2.2	3st	Low	Stable	High
M	2.1	4th	Moderate	Very stable	Very low

Criteria	Weighting coefficients
Quality	4
Risk of shortage	3
Quality stability	3
Provider's flexibility	2

Which is the best provider according to the weighted average price? (13 marks).

8. The company is working on a project of building a website that implies different activities:

Activities	Time required (weeks)	Preceeding activities
A : Design	1	-
B :Create content	2	A
C : Build site	3	A, B
D : Develop Mark	1	A
E : Test site	1	C
F : Edit copy	1	B
G : Marketing push	2	D
H : Deploy	1	G,E, F

Represent the PERT chart of this project and identify the critical path. What is the minimum time required to complete the project? (12 marks).