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**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER II  
SESSION 2018/2019**

COURSE NAME : INTRODUCTION TO LEAN  
PRODUCTION

COURSE CODE : BNJ 30602

PROGRAMME CODE : BNH

EXAMINATION DATE : JUNE/ JULY 2019

DURATION : 2 HOURS

INSTRUCTION : ANSWERS ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

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- Q1** (a) Define and elaborate the principles of lean. (5 marks)
- (b) Lean thinking is a pursuit via a systematic approach to identify and eliminate waste through the continuous improvement of the value stream. This will enable the product or information to flow at a rate determined by the pull of customer. Analyze how lean thinking can achieve the goal. (5 marks)
- (c) List **FIVE (5)** benefits of lean and demonstrate how those benefits can lead to a better performance of a company. (10 marks)
- Q2** (a) Summarize **THREE (3)** benefits of using Value Stream Mapping (VSM). (3 marks)
- (b) A factory of a pen manufacturer opens 5 days a week with 2 shifts per day. Every shift is 360 minutes. The lunch break is 45 minutes. In the period of 10 weeks, the customer's demand is 1795 pens. Calculate the Takt Time of the pen production. (3 marks)
- (c) The 7 Wastes of Lean is the list activities that does not add value to the customer requirements. Identify and elaborate the 7 Wastes of Lean (14 marks)
- Q3** (a) List the elements of 5S and explain on how to implement them. (5 marks)
- (b) Standardization has a lot of benefits. It can create time for creative work. Explain **FIVE (5)** benefits of standardization. (5 marks)
- (c) Mr. Rahman owns a textile factory that has a dozen of embroidery machines. The factory already operated for 3 years. He noticed that every year, the factory failed to fulfill customers' demands and this trend results to decreased number of orders. Demonstrate a ways to implement Single Minute Exchange of Dies (SMED) technique to Mr. Rahman's factory. (10 marks)

- Q4** (a) A Kanban is a flash card mechanism used to carry all the information about the status of a particular work and the work required to be done on the product. Distinguish **FIVE (5)** advantages of using Kanban.  
(5 marks)
- (b) Total Productive Maintenance (TPM) is a process improvement method. TPM concentrates on productivity improvement, primarily on the way of maximizing availability of equipment. Point-out **FIVE (5)** benefits of TPM.  
(5 marks)
- (c) Mr. Raju is a Floor Manager in a watch-making company. His company launched a new watch model and it was an instant hit. The order numbers for the new watch model is so high that resulted in additional shift hours. The company also employed 20 new operators in order to fulfill the escalated demands. Unfortunately, some of the workers keep making the same mistakes during the operation and this scenario yielded the unwanted effects to the company. Outline a way on how Mr. Raju can implement the Poka Yoke technique to overcome this problem.  
(10 marks)
- Q5** (a) To ensure that lean practices are correctly used throughout the company, a lean audit is necessary. Determine the step needed to conduct a lean audit.  
(10 marks)
- (b) The true intention of a Kaizen Event is to hold small events attended by the owners and operators of a process to make improvements. Outline a plan to organize a successful Kaizen Event.  
(10 marks)

**-END OF QUESTIONS –**