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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
(ONLINE)
SEMESTER I
SESSION 2020/2021**

COURSE NAME : QUALITY MANAGEMENT
COURSE CODE : BPB 44002
PROGRAMME CODE : BPB
EXAMINATION DATE : JANUARY / FEBRUARY 2021
DURATION : 2 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

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THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

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Q1 (a) Outline Plan, Do, Check and Action (PDCA) activities using general process map.

(10 marks)

(b) Hakin, as quality control manager, has reviewed production data for improvement in final production line. He wants to set up a quality control circle (QCC) to investigate problem. You have been appointed by Hakin to lead the project. Data has been collected to identify the actual causes as presented in **Table Q1**.

Table Q1: Problems of rejected units

No	Causes	Quantity
1	Machine breakdown	49
2	Workmiss amongst employees	32
3	SOP problem	4
4	Workplace problem	3
5	Workplace unorganised	3
6	Plastic part bending	3
7	Panel fail	2
8	Improper schedule for 5S	2
9	Lack of awareness	1
10	Lack of co-operation	1

(i) Draw Pareto chart based on data from **Table Q1(b)**.

(4 marks)

(ii) Analyse the root cause of machine breakdown based on Five Why Analysis.

(5 marks)

(iii) Propose **TWO (2)** detail solutions for improvement based on two main causes as stated in **Table Q1** using Tree Diagram.

(6 marks)

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- Q2**
- (a) Explain **THREE (3)** sources of variation in production process. (6 marks)
 - (b) Compare **THREE (3)** differences between stable process and unstable process. (6 marks)
 - (c) Differentiate between the terms defect and defective unit. (4 marks)
 - (d) The thickness of a plastic part, k is specified between 9.95 and 10.05 mm. 200 samples have been measured with resulting mean of 10.03 mm and standard deviation of 0.02.

Calculate the followings:

- (i) C_{pu} (3 marks)
- (ii) C_{pl} (3 marks)
- (iii) C_{pk} (3 marks)

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- Q3** (a) (i) Sketch quality management system model based on ISO 9001:2000. (5 marks)
- (ii) Discuss **FOUR (4)** main sections in Quality Management System: ISO 9001 to improve customer satisfaction in an organisation. (8 marks)
- (b) ART Sdn. Bhd. faces problem on cost and prices of its products were high and its products were of relatively inferior quality in comparison to its competitors. Between 2015 and 2020, ART's profits decreased from \$ 4.50 billion to \$ 0.50 billion. ART's return on assets fell to less than 5.0 % and marketshare came down sharply from 90% in 2015 to just 10% in 2020. ART quickly began emphasizing improvement for improving their business performance through implementing the benchmarking program.
- Apply **SIX (6)** steps for implementing benchmarking in improving ART company to improve its business performance. (12 marks)
- Q4** (a) GTX Sdn. Bhd has received order from Lotus company for supplying car parts. Lotus has requested GTX Sdn. Bhd to supply at 2 ppm level of quality. However, the current quality level of the company is 50,807 ppm.
- (i) Calculate value in percentage for 50,807 ppm. (2 marks)
- (ii) Determine **ONE (1)** type of improvement approach which GTX should implement to achieve 2 ppm. (2 marks)
- (iii) Explain **ONE (1)** reason why the improvement approach was chosen in **Q4(a)(ii)**. (2 marks)
- (iv) Differentiate **TWO (2)** items between new QC tools and basic QC tools of quality in terms of type of data and function. (4 marks)
- (b) Outline **FIVE (5)** DMAIC process in improving variation in the process with appropriate examples. (15 marks)

-END OF QUESTIONS-

